

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 23 April 2001 (23.04.01)	
International application No. PCT/SE00/01501	Applicant's or agent's file reference P11090-M/OLL
International filing date (day/month/year) 18 July 2000 (18.07.00)	Priority date (day/month/year) 22 July 1999 (22.07.99)
Applicant LUNDGREN, Stefan et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 22 February 2001 (22.02.01)

☐ in a notice effecting later election filed with the International Bureau on:  
 \_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Claudio Borton Telephone No.: (41-22) 338.83.38
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REC'D 06 NOV 2001

WIPO

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference P11090-M/OLL	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE00/01501	International filing date (day/month/year) 18/07/2000	Priority date (day/month/year) 22/07/1999
International Patent Classification (IPC) or national classification and IPC A63B71/06		
Applicant APROCH AB et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  22/02/2001	Date of completion of this report  02.11.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  OECHSNER DE CONINCK  Telephone No. +49 89 2399 2986 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SE00/01501

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-14 as published

**Claims, No.:**

1-52 with telefax of 14/09/2001

**Drawings, sheets:**

1/9-9/9 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SE00/01501

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-52
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-52
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-52
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**



1. Reference is made to the following documents:

D1: WO-A1-9742588

D2: US-A-5558333

D3: US-A-5810680

D4: US-A-5882269

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The document D1 is regarded as being the closest prior art to the subject-matter of claims 1, 22 and 38, and discloses (page 4, lines 23- page 6, line 6; figs): A system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, containing: -an input device (Fig 1: parameter entry); -a calculating device; -a profile generation device (plot operating points).
2. Problem is to provide a system for characterising the properties of a practiser of a certain stage.
3. This problem is solved by the following novel features with respect to D1: A reference database is provided containing a pre stored normal characteristics profile and a comparison device, connected to the profile generation device and the reference database is provided to generate a comparison profile by comparing said characteristics profile with said normal characteristics profile.
4. The independent claims 17 to 22 and 38 disclose the same characterising features in a computer program and a method.
5. Although some of the prior art documents may contain a reference database and comparison device, the comparison devices are not meant to generate such a type of comparison profile.

6. Claims 2 to 16, 23 to 37 and 39 to 52 are dependent on at least one of the independent claims 1, 22 or 38 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**Re Item VII**

**Certain defects in the international application**

1. Although claims 1 and 33 are drafted in the two-part form some of their features are incorrectly placed in the characterising portion (See Item V above), as they are disclosed in document D1 in combination with the features placed in the preamble (Rule 6.3(b) PCT).
2. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

**Re Item VIII**

**Certain observations on the international application**

1. The claims 1, 17, 18, 20 and 21 have been drafted as separate independent claims, however they appear to relate effectively to the same subject-matter a system. A lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection (Art 6 PCT).

CLAIMS

1. A system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising
  - 5 - an input device (104, 105, 302), for entering result data for one or more predetermined parameters from one or several performed stages;
  - a calculating device (106, 304), connected to the input device and devised to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;
  - 10 - a profile generation device (106, 308), connected to said calculation device, and devised to generate a characteristics profile by compiling said calculated characteristics measurement values; and characterised by
  - a reference database (311) containing a pre-stored normal characteristics profile;
  - a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said
  - 15 characteristics profile with said pre-stored normal characteristics profile.
2. The system according to claim 1, wherein a device (318) for presentation of the comparison profile is devised to present the comparison profile graphically on a
- 20 presentation unit (112).
3. A system according to claims 1 or 2, wherein the comparison device is devised to generate a comparison profile by applying a predetermined mathematical operation to the characteristics profile and the normal profile.
- 25
4. The system according to claim 3, wherein the comparison device is devised to generate a comparison profile in the form of a difference profile (804), by calculating the difference between characteristics measurement values for each parameter (806, 808, 809, 810, 812, 814) of the characteristics profile and the normal
- 30 profile.
5. The system according to claim 2, wherein said device (318) for presentation of the comparison profile is devised to visualise, for each parameter (1406, 1408, 1409, 1410, 1412, 1414), a current characteristics measurement value (1415) and a
- 35 normal characteristics measurement value (1416) in the same diagram.
6. The system according to claim 1, further comprising a selection device (314) connected to the profile generation device (308) and/or the comparison device (312) and/or a memory containing a profile data structure (310), and being devised to

select, in dependence of said characteristics profile or comparison profile, a pre-stored action program.

7. The system according to claim 1, wherein said characteristics profile is a profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.

8. The system according to claim 7, wherein said normal characteristics profile is a profile for an average practiser within said group.

9. A system according to claim 6, wherein said practiser is a sports practiser, said stage being a game round of said sport, said parameter is a game parameter and said action program is a training model for improvement of the practiser's player properties within said sport.

10. The system according to claim 9, further comprising a device (302) arranged for entering player data for the sports practiser, and wherein said normal profile is based upon corresponding player data, for example age group, sex, handicap or ranking.

11. The system according to claim 10, wherein said device (318) for presentation of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a bar diagram (404, 504, 604, 704, 804, 1004, 1104, 1204) having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value.

12. The system according to claim 10, wherein said device (318) for presentation of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a curve chart (904, 1404), where the level of the curve for each game parameter corresponds to the characteristics measurement value.

13. The system according to claim 10, adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.

14. The system according to claim 10, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types

and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.

15 The system according to claim 10, further comprising a device (314) for maintaining a computer structure for storing of characteristics measurement values in a memory (110).

10 16. The system according to claim 10, further comprising a device (310) for maintaining a computer structure for storing of characteristics profiles in a memory (110).

17. A system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising  
15 - an input device (104, 105, 302), for entering result data for one or more predetermined parameters from one or several performed stages;  
- a calculating device (106, 304), connected to the input device and devised to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;  
- a profile generation device (106, 308), connected to said calculation device, and  
20 devised to generate a characteristics profile by compiling said calculated characteristics measurement values; and characterised in that said characteristics profile is a profile for a practiser of said stage who achieved said result data, the system further comprising  
- a reference database (311) containing a pre-stored normal characteristics profile  
25 calculated from results for a single practiser, or a group of practisers with common properties;  
- a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said characteristics profile with said pre-stored normal characteristics profile. (1+7)

30 18. A system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising  
- an input device (104, 105, 302), for entering result data for one or more predetermined parameters from one or several performed stages;  
35 - a calculating device (106, 304), connected to the input device and devised to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;  
- a profile generation device (106, 308), connected to said calculation device, and devised to generate a characteristics profile by compiling said calculated char-

acteristics measurement values; and characterised by:

- a reference database (311) containing a pre-stored normal characteristics profile;
- a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said
- 5 characteristics profile with said pre-stored normal characteristics profile;
- a selection device (314) connected to the profile generation device (308) and/or the comparison device (312) and/or a memory containing a profile data structure (310), and being devised to select, in dependence of said characteristics profile or comparison profile, a pre-stored action program. (1+6)

10

19. A system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising

- an input device (104, 105, 302), for entering result data for one or more predetermined parameters from one or several performed stages;

15

- a calculating device (106, 304), connected to the input device and devised to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;

- a profile generation device (106, 308), connected to said calculation device, and devised to generate a characteristics profile by compiling said calculated char-

20 acteristics measurement values; and characterised in that said characteristics profile is a profile for a practiser of said stage who achieved said result data, the system further comprising:

- a reference database (311) containing a pre-stored normal characteristics profile calculated from results for a single practiser, or a group of practisers with common
- 25 properties;

- a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said practisers' characteristics profile with said pre-stored normal characteristics profile;

- a selection device (314) connected to the profile generation device (308) and/or
- 30 the comparison device (312) and/or a memory containing a profile data structure (310), and being devised to select, in dependence of said characteristics profile or comparison profile, a pre-stored action program for improving the practisers' performance as revealed by said comparison device. (1+6+7)

35 20. A system for registration and analysis of data from a practised game round of a sport, and for generation of action programs in dependence of the performed analysis, characterised by

- an input device (104, 105, 302), for entering result data for one or more predetermined game parameters from one or several game rounds performed by a sports

practiser;

- a calculating device (106, 304), connected to the input device and devised to calculate, for each of said game parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;

5 - a profile generation device (106, 308), connected to said calculation device, and devised to generate a characteristics profile by compiling said calculated characteristics measurement values;

- a reference database (311) containing a pre-stored normal characteristics profile calculated from results for a single practiser of said sport, or a group of practisers  
10 with common properties;

- a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said characteristics profile with said pre-stored normal characteristics profile. (1+7+part  
of claim 9)

15

21. A system for registration and analysis of data from a practised game round of a sport, and for generation of action programs in dependence of the performed analysis, characterised by

- an input device (104, 105, 302), for entering result data for one or more predetermined game parameters from one or several game rounds performed by a sports  
20 practiser;

- a calculating device (106, 304), connected to the input device and devised to calculate, for each of said game parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;

25 - a profile generation device (106, 308), connected to said calculation device, and devised to generate a characteristics profile by compiling said calculated characteristics measurement values;

- a reference database (311) containing a pre-stored normal characteristics profile calculated from results for a single practiser of said sport, or a group of practisers  
30 with common properties;

- a comparison device (312), connected to the profile generation device and the reference database, and devised to generate a comparison profile by comparing said characteristics profile with said pre-stored normal characteristics profile;

- a selection device (314) connected to the profile generation device (308) and/or  
35 the comparison device (312) and/or a memory containing a profile data structure (310), and being devised to select, in dependence of said characteristics profile or comparison profile, a pre-stored training model for improving the practisers' performance as revealed by said comparison device. (1+6+7+9)

22. A computer program product, for use together with a computer processing system (106), for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising  
- a computer storage medium (111),

5 characterised by:

- means (302), stored on the storage medium, devised to control the computer processing system to receive the input of result data for one or more predetermined parameters from one or several performed stages;

10 - calculating means (114, 304), stored on the storage medium, devised to control the computer processing system to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;

15 - profile generation means (114, 308), stored on the storage medium, devised to control the computer processing system to generate a characteristics profile by compiling said calculated characteristics measurement values;

- comparison means (312), stored on the storage medium, devised to control the computer processing system to generate a comparison profile by comparing said characteristics profile with a normal profile, pre-stored in a reference database (311).

20

23. The computer program product according to claim 17, wherein means (318), stored on the storage medium, for presentation of the comparison profile, is devised to present the comparison profile graphically on a presentation unit (112) connected to the computer processing system.

25

24. The computer program product according to claims 17 or 18, wherein the comparison means is devised to control the computer processing system to generate a comparison profile by applying a predetermined mathematical operation to the characteristics profile and the normal profile.

30

25. The computer program product according to claim 19, wherein the comparison means is devised to generate a comparison profile in the form of a difference profile (804), by calculating the difference between characteristics measurement values for each parameter (806, 808, 809, 810, 812, 814) of the characteristics profile and the

35 normal profile, respectively.

26. The computer program product according to claims 17 or 18, wherein said means (318) for presentation of the comparison profile is devised to visualise, for each parameter (1406, 1408, 1409, 1410, 1412, 1414), a current characteristics



measurement value and a normal characteristics measurement value in the same diagram (1404).

27. The computer program product according to claim 17, further comprising  
5 selection means (314), stored on the storage medium, devised to control the computer processing system to select, in dependence of said characteristics profile or comparison profile, a pre-stored action program.

28. The computer program product according to claim 17, wherein said charac-  
10 teristics profile is a profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.

29. The computer program product according to claim 23, wherein said normal  
15 profile is a profile for an average practiser within said group.

30. The computer program product according to any one of the claims 17 - 24,  
wherein said practiser is a sports practiser, said stage is one game round of said sport, said parameter is a game parameter and said action program is a training  
20 model for improvement of the practiser's player properties within said sport.

31. The computer program product according to claim 25, further comprising means  
(302), stored on the storage medium, devised to control the computer processing system to receive input player data for the sports practiser; and wherein said normal  
25 profile is based upon corresponding player data, for example age group, sex, handicap or ranking.

32. The computer program product according to claim 25, wherein said means (318)  
for presentation of the comparison profile further is devised to visually present, on  
30 said presentation unit (112), the characteristics profile or the comparison profile in the form of a bar diagram (404, 504, 604, 704, 804, 1004, 1104, 1204) having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value.

33. The computer program product according to claim 23, wherein said means (318)  
for presentation of the comparison profile further is devised to visually present, on  
said presentation unit (112), the characteristics profile or the comparison profile in  
the form of a curve chart (904, 1404), where the level of the curve for each game

parameter corresponds to the characteristics measurement value.

34. The computer program product according to claim 25, further being adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.
35. The computer program product according to claim 25, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.
36. The computer program product according to claim 25, further comprising means (314), stored on the storage medium, devised to control the computer processing system to maintain a computer structure for storing of characteristics measurement values in a memory (110).
37. The computer program product according to claim 25, further comprising means (310), stored on the storage medium, devised to control the computer processing system to maintain a computer structure for storing of characteristics profiles in a memory (110).
38. A method for registering and analysing data from a practised stage, and for generating action programs in dependence of the performed analysis, characterised by the steps of:
- registering result data (204) for one or more predetermined parameters from one or several performed stages;
  - calculating (206), for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement;
  - generating (298) a characteristics profile by compiling said calculated characteristics measurement values;
  - generating a comparison profile (214) by comparing said characteristics profile with a pre-stored normal profile.
39. The method according to claim 33, further comprising the step of graphically presenting (216) the comparison profile on a presentation unit connected to the computer processing system.

40. The method according to claims 33 or 34, further comprising the step of generating a comparison profile by applying a predetermined mathematical operation to the characteristics profile and the normal profile.

5 41. The method according to claim 34, whereby a comparison profile in the form of a difference profile is generated by calculating the difference between characteristics measurement values for each parameter of the characteristics profile and the normal profile, respectively.

10 42. The method according to claim 34, further comprising the step of visualising, for each parameter, a current characteristics measurement value and a normal characteristics measurement value in the same diagram.

15 43. The method according to claim 33, further comprising the step of selecting (220), in dependence of said characteristics profile or comparison profile, a pre-stored action program.

20 44. The method according to claim 38, further comprising the step of visually presenting (222) instructions and figures associated with the current action program.

45. The method according to claim 33, whereby said characteristics profile is a profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.

25 46. The method according to claim 34, whereby said normal profile is a profile for an average practiser within said group.

30 47. The method according to any one of claims 33 - 41, whereby said practiser is a sports practiser, said stage is one game round of said sport, said parameter is a game parameter and said action program is a training model for improvement of the practiser's player properties within said sport.

35 48. The method according to claim 42, further comprising the step of registering player data (204) for the sports practiser; and whereby said normal profile is based upon corresponding player data, for example age group, sex, handicap or ranking.

49. The method according to claim 42, further comprising the step of visually presenting (210, 216) the characteristics profile or the comparison profile in the form of a bar diagram having one bar for each game parameter, where the bar

height corresponds to the characteristics measurement value.

50. The method according to claim 42, further comprising the step of visually presenting (210, 216) the characteristics profile or the comparison profile in the form of a curve chart (904, 1404), where the level of the curve for each game parameter corresponds to the characteristics measurement value.

51. The method according to claim 42, adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.

52. The method according to claim 42, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.

## PATENT COOPERATION TREATY

2001 05-28

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From the INTERNATIONAL BUREAU

INFORMATION CONCERNING ELECTED  
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

To:

LINDBERG, Oille  
 Albihns Malmö AB  
 P.O. Box 4289  
 S-203 14 Malmö  
 SUÈDE

Date of mailing (day/month/year) 11 May 2001 (11.05.01)		IMPORTANT INFORMATION	
Applicant's or agent's file reference P11090-M/OLL			
International application No. PCT/SE00/01501	International filing date (day/month/year) 18 July 2000 (18.07.00)	Priority date (day/month/year) 22 July 1999 (22.07.99)	
Applicant APROCH...AB et al			

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, CA, CN, CZ, DE, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AE, AG, AL, AM, AT, AZ, BA, BB, BR, BY, BZ, CH, CR, CU, DK, DM, DZ, EE, ES, FI, GB,  
 GD, GE, GH, GM, HR, HU, ID, IN, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MW,  
 MX, MZ, PT, SD, SG, SI, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

A. Karkachi

Telephone No. (41-22) 338.83.38

ANKOM

## PATENT COOPERATION TREATY

2001 -02- 2 6

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From the INTERNATIONAL BUREAU

NOTICE INFORMING THE APPLICANT OF THE  
COMMUNICATION OF THE INTERNATIONAL  
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

ÅKERMAN, Mårten  
Albihns Patentbyrå Malmö AB  
P.O. Box 4289  
S-203 14 Malmö  
SUÈDE

Date of mailing (day/month/year) 15 February 2001 (15.02.01)		
Applicant's or agent's file reference P11090-M/OLL		IMPORTANT NOTICE
International application No. PCT/SE00/01501	International filing date (day/month/year) 18 July 2000 (18.07.00)	
		Priority date (day/month/year) 22 July 1999 (22.07.99)
Applicant APROCH...AB et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:  
AU,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE,AG,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,BZ,CA,CH,CN,CR,CU,CZ,DE,DK,DM,DZ,EA,EE,EP,ES,  
FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,  
MN,MW,MX,MZ,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,  
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on  
15 February 2001 (15.02.01) under No. WO 01/10518

**REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)**

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

**REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))**

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
--	---

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

ALBIHNS PATENTBYRÅ MALMÖ AB  
P.O. Box 4289  
S-203 14 Malmö  
SUÈDE

Date of mailing (day/month/year) 03 November 2000 (03.11.00)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference P11090-M/OLL	
International application No. PCT/SE00/01501	International filing date (day/month/year) 18 July 2000 (18.07.00)

1. The following indications appeared on record concerning:	
<input checked="" type="checkbox"/> the applicant	<input checked="" type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address	State of Nationality
	State of Residence
	Telephone No.
	Facsimile No.
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:	
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address HELMERSSON, Bengt Gästgivarevägen 12 SE-266 98 Hjärnarp Sweden	State of Nationality SE
	State of Residence SE
	Telephone No.
	Facsimile No.
3. Further observations, if necessary: The applicant/inventor for US only has been added.	
4. A copy of this notification has been sent to:	
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input checked="" type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. De Michiel Telephone No.: (41-22) 338.83.38
---	---

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

ALBIHNS PATENTBYRÅ MALMÖ AB  
P.O. Box 4289  
S-203 14 Malmö  
SUÈDE

Date of mailing (day/month/year)

03 November 2000 (03.11.00)

Applicant's or agent's file reference

P11090-M/OLL

International application No.

PCT/SE00/01501

## IMPORTANT NOTIFICATION

International filing date (day/month/year)

18 July 2000 (18.07.00)

## 1. The following indications appeared on record concerning:



the applicant



the inventor



the agent



the common representative

Name and Address

State of Nationality

State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:



the person



the name



the address



the nationality



the residence

Name and Address

LUNDGREN, Stefan  
V Kyrkogatan 5  
S-262 32 Ängelholm  
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

## 3. Further observations, if necessary:

The applicant/inventor for US only has been added.

## 4. A copy of this notification has been sent to:



the receiving Office



the International Searching Authority



the International Preliminary Examining Authority



the designated Offices concerned



the elected Offices concerned



other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

S. De Michiel

Telephone No.: (41-22) 338.83.38



## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

ALBIHNS PATENTBYRÅ MALMÖ AB  
P.O. Box 4289  
S-203 14 Malmö  
SUEDE

Date of mailing (day/month/year)

03-November 2000 (03.11.00)

Applicant's or agent's file reference

P11090-M/OLL

## IMPORTANT NOTIFICATION

International application No.

PCT/SE00/01501

International filing date (day/month/year)

18 July 2000 (18.07.00)

1. The following indications appeared on record concerning:



the applicant



the inventor



the agent



the common representative

Name and Address

WIKSTRÖM, Bo  
Jaktstigen 10  
S-261 75 Asmundtorp  
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:



the person



the name



the address



the nationality



the residence

Name and Address

State of Nationality

State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

The applicant/inventor listed in Box 1 has been cancelled from the application.

4. A copy of this notification has been sent to:



the receiving Office



the designated Offices concerned



the International Searching Authority



the elected Offices concerned



the International Preliminary Examining Authority



other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

S. De Michiel

Telephone No.: (41-22) 338.83.38

2000-11-01

# PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

## NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

ALBIHNS PATENTBYRÅ MALMÖ AB  
P.O. Box 4289  
S-203 14 Malmö  
SUÈDE

Date of mailing (day/month/year) 23 October 2000 (23.10.00)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference P11090-M/OLL	
International application No. PCT/SE00/01501	International filing date (day/month/year) 18 July 2000 (18.07.00)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 22 July 1999 (22.07.99)
Applicant APROCH...AB et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
22 July 1999 (22.07.99)	9902773-2	SE	19 Sept 2000 (19.09.00)

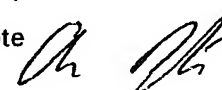
The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

A. Dezempte

Telephone No. (41-22) 338.83.38



## PATENT COOPERATION TREATY

ANKOM

2000-09-27

PCT

From the INTERNATIONAL BUREAU OF PATENT COOPERATION

To:

NOTIFICATION OF RECEIPT OF  
RECORD COPY

(PCT Rule 24.2(a))

ALBIHNS PATENTBYRÅ MALMÖ AB  
P.O. Box 4289  
S-203 14 Malmö  
SUÈDE

Date of mailing (day/month/year) 20 September 2000 (20.09.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference P11090-M/OLL	International application No. PCT/SE00/01501

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

APROCH...AB (for all designated States except US)  
WIKSTRÖM, Bo (for US)

International filing date : 18 July 2000 (18.07.00)  
Priority date(s) claimed : 22 July 1999 (22.07.99)  
Date of receipt of the record copy  
by the International Bureau : 16 August 2000 (16.08.00)

List of designated Offices :

AP : GH,GM,KE,LS,MW,MZ,SD,SL,SZ,TZ,UG,ZW  
EA : AM,AZ,BY,KG,KZ,MD,RU,TJ,TM  
EP : AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE  
OA : BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG  
National : AE,AG,AL,AM,AT,AU,AZ,BA,BB,BG,BR,BY,BZ,CA,CH,CN,CR,CU,CZ,DE,DK,DM,DZ,EE,  
ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KP,KR,KZ,LC,LK,LR,LS,LT,LU,LV,MA,  
MD,MG,MK,MN,MW,MX,MZ,NO,NZ,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,US,  
UZ,VN,YU,ZA,ZW

## ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase  
☐ confirmation of precautionary designations  
☒ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

S. De Michiel

Telephone No. (41-22) 338.83.38

**INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE**

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated in the Notification of Receipt of Record Copy (Form PCT/IB/301) by paying national fees and furnishing translations, as prescribed by the applicable national laws.

The time limit for performing these procedural acts is **20 MONTHS** from the priority date or, for those designated States which the applicant elects in a demand for international preliminary examination or in a later election, **30 MONTHS** from the priority date, provided that the election is made before the expiration of 19 months from the priority date. Some designated (or elected) Offices have fixed time limits which expire even later than 20 or 30 months from the priority date. In other Offices an extension of time or grace period, in some cases upon payment of an additional fee, is available.

In addition to these procedural acts, the applicant may also have to comply with other special requirements applicable in certain Offices. It is the **applicant's responsibility** to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most designated Offices do not issue reminders to applicants in connection with the entry into the national phase.

For detailed information about the procedural acts to be performed to enter the national phase before each designated Office, the applicable time limits and possible extensions of time or grace periods, and any other requirements, see the relevant Chapters of Volume II of the PCT Applicant's Guide. Information about the requirements for filing a demand for international preliminary examination is set out in Chapter IX of Volume I of the PCT Applicant's Guide.

GR and ES became bound by PCT Chapter II on 7 September 1996 and 6 September 1997, respectively, and may, therefore, be elected in a demand or a later election filed on or after 7 September 1996 and 6 September 1997, respectively, regardless of the filing date of the international application. (See second paragraph above.)

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

**CONFIRMATION OF PRECAUTIONARY DESIGNATIONS**

This notification lists only specific designations made under Rule 4.9(a) in the request. It is important to check that these designations are correct. Errors in designations can be corrected where precautionary designations have been made under Rule 4.9(b). The applicant is hereby reminded that any precautionary designations may be confirmed according to Rule 4.9(c) before the expiration of 15 months from the priority date. If it is not confirmed, it will automatically be regarded as withdrawn by the applicant. There will be no reminder and no invitation. Confirmation of a designation consists of the filing of a notice specifying the designated State concerned (with an indication of the kind of protection or treatment desired) and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.

**REQUIREMENTS REGARDING PRIORITY DOCUMENTS**

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity to furnish the priority document within a time limit which is reasonable under the circumstances.

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit is the filing date of the earliest application whose priority is claimed.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

To:

LINDBERG, Olle  
Albihns Malmö AB  
P.O. Box 4289  
S-203 14 Malmö  
SUEDE

ANKO

2001 -11- 05

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year) 02.11.2001

Applicant's or agent's file reference  
P11090-M/OLL

#### IMPORTANT NOTIFICATION

International application No.  
PCT/SE00/01501

International filing date (day/month/year)  
18/07/2000

Priority date (day/month/year)  
22/07/1999

Applicant  
APROCH AB et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer

Goenechea Olmos, A

Tel. +49 89 2399-2664



# RECORD COP.

The Swedish Patent Office  
PCT International Application

PCT/SE00/01501  
18-07-2000

1/4

## PCT REQUEST

P11090-M/OLL

Original (for SUBMISSION) - printed on 17.07.2000 01:23:10 PM

0 0-1	For receiving Office use only International Application No.	PCT/ SE 0 0 / 0 1 5 0 1
0-2	International Filing Date	1 8 -07- 2000
0-3	Name of receiving Office and "PCT International Application"	The Swedish Patent Office PCT International Application
0-4 0-4-1	Form - PCT/RO/101 PCT Request Prepared using	PCT-EASY Version 2.91 (updated 01.07.2000)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	Swedish Patent Office (RO/SE)
0-7	Applicant's or agent's file reference	P11090-M/OLL
I	Title of invention	SYSTEM FOR RECORDAL AND ANALYSIS OF DATA, AND CREATING OF ACTION PLAN
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	aPROch...AB
II-5	Address:	Vaktgatan 10 S-262 31 ÄNGELHOLM Sweden
II-6	State of nationality	SE
II-7	State of residence	SE
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	WIKSTRÖM, Bo
III-1-5	Address:	Jaktstigen 10 S-261 75 ASMUNDTORP Sweden
III-1-6	State of nationality	SE
III-1-7	State of residence	SE

\* Title changed.

① LUNDBREN, Stefan  
V Kyrkogatan 5  
SE-262 32 Ängelholm  
② HELMERSSON, Bengt  
Gästgivarevägen 12  
SE-266 98 Hjärnarp

PCT REQUEST

Original (for SUBMISSION) - printed on 17.07.2000 01:23:10 PM

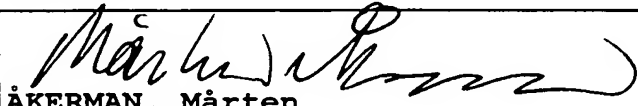
P11090-M/OLL

IV-1	<b>Agent or common representative; or address for correspondence</b> The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	<b>agent</b>
IV-1-1	Name	ALBIHNS PATENTBYRÅ MALMÖ AB
IV-1-2	Address:	P.O. Box 4289 S-203 14 MALMÖ Sweden
IV-1-3	Telephone No.	+46 40 690 54 00
IV-1-4	Facsimile No.	+46 40 611 96 89
IV-1-5	e-mail	info.malmo@albihns.se
IV-2	<b>Additional agent(s)</b>	<b>additional agent(s) with same address as first named agent</b>
IV-2-1	Name(s)	ÅKERMAN, Mårten; KITZLER, Michael; LINDBERG, Olle; BERGMAN, Kerstin; MANNERLÖF TENNING, Marie; DANFELTER, Maria; RÜTER, Viveca
V	<b>Designation of States</b>	
V-1	<b>Regional Patent</b> (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	<b>National Patent</b> (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

## PCT REQUEST

P11090-M/OLL

Original (for SUBMISSION) - printed on 17.07.2000 01:23:10 PM

V-5	<b>Precautionary Designation Statement</b> In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.	
V-6	<b>Exclusion(s) from precautionary designations</b>	NONE
VI-1	<b>Priority claim of earlier national application</b>	
VI-1-1	Filing date	22 July 1999 (22.07.1999)
VI-1-2	Number	9902773-2
VI-1-3	Country	SE
VI-2	<b>Priority document request</b> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1
VII-1	<b>International Searching Authority Chosen</b>	Swedish Patent Office (ISA/SE)
VII-2	<b>Request to use results of earlier search; reference to that search</b>	
VII-2-1	Date	22 July 1999 (22.07.1999)
VII-2-2	Number	9902773-2   SE 99/01044
VII-2-3	Country (or regional Office)	SE
VIII	<b>Check list</b>	number of sheets      electronic file(s) attached
VIII-1	Request	4 ✓      -
VIII-2	Description	14 ✓      -
VIII-3	Claims	7 ✓      -
VIII-4	Abstract	1 ✓      sammandrag.txt
VIII-5	Drawings	9 ✓      -
VIII-7	TOTAL	35
	<b>Accompanying items</b>	paper document(s) attached      electronic file(s) attached
VIII-8	Fee calculation sheet	✓      -
VIII-9	Separate signed power of attorney	✓      -
VIII-16	PCT-EASY diskette	-      diskette
VIII-18	Figure of the drawings which should accompany the abstract	15
VIII-19	Language of filing of the international application	Swedish
IX-1	Signature of applicant or agent	
IX-1-1	Name (LAST, First)	ÅKERMAN, Märten



PCT REQUEST

P11090-M/OLL

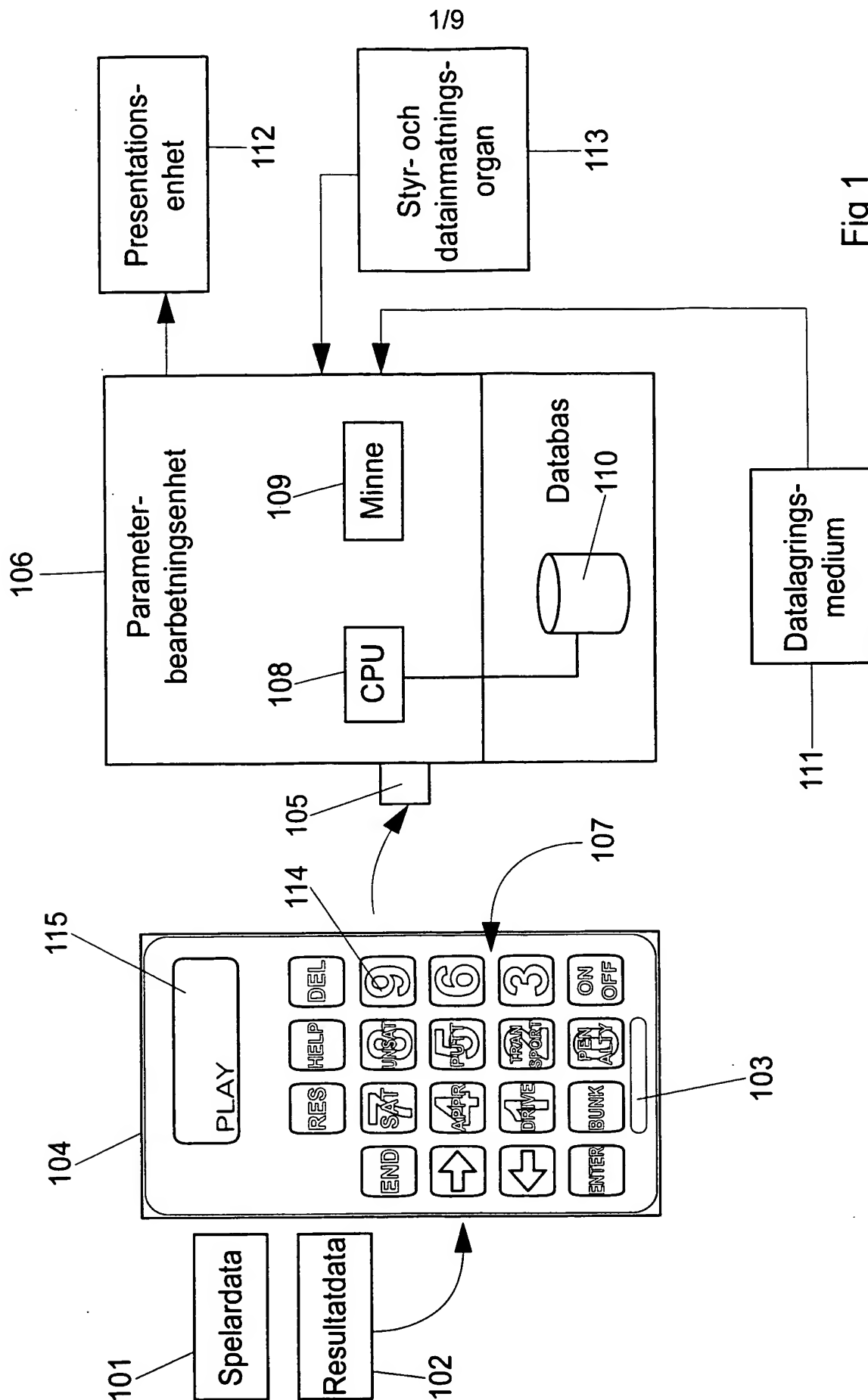
Original (for SUBMISSION) - printed on 17.07.2000 01:23:10 PM

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	18-07-2000
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/SE
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	16 AUGUST 2000	( 16.08.00 )
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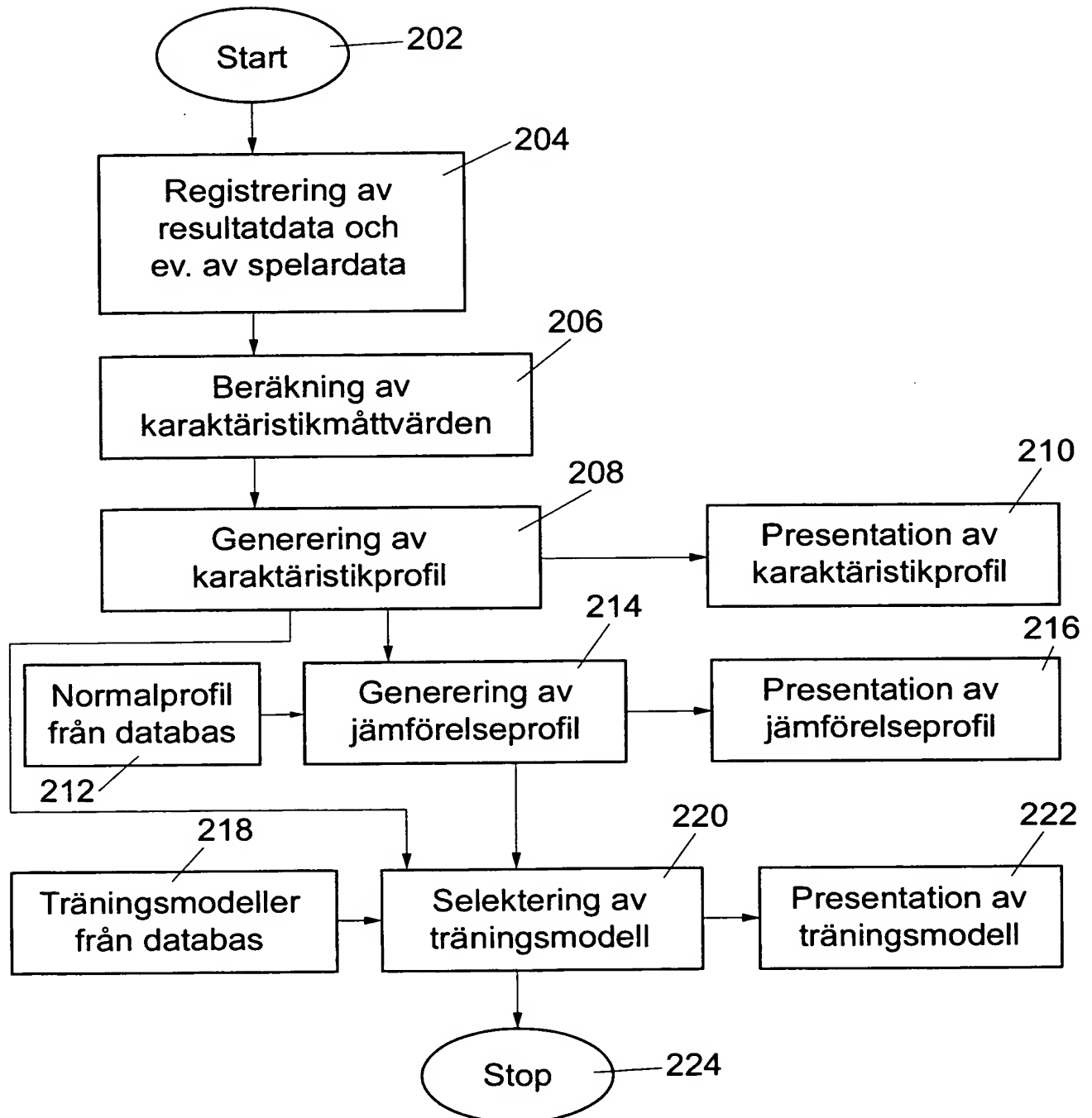


Fig 2

3/9

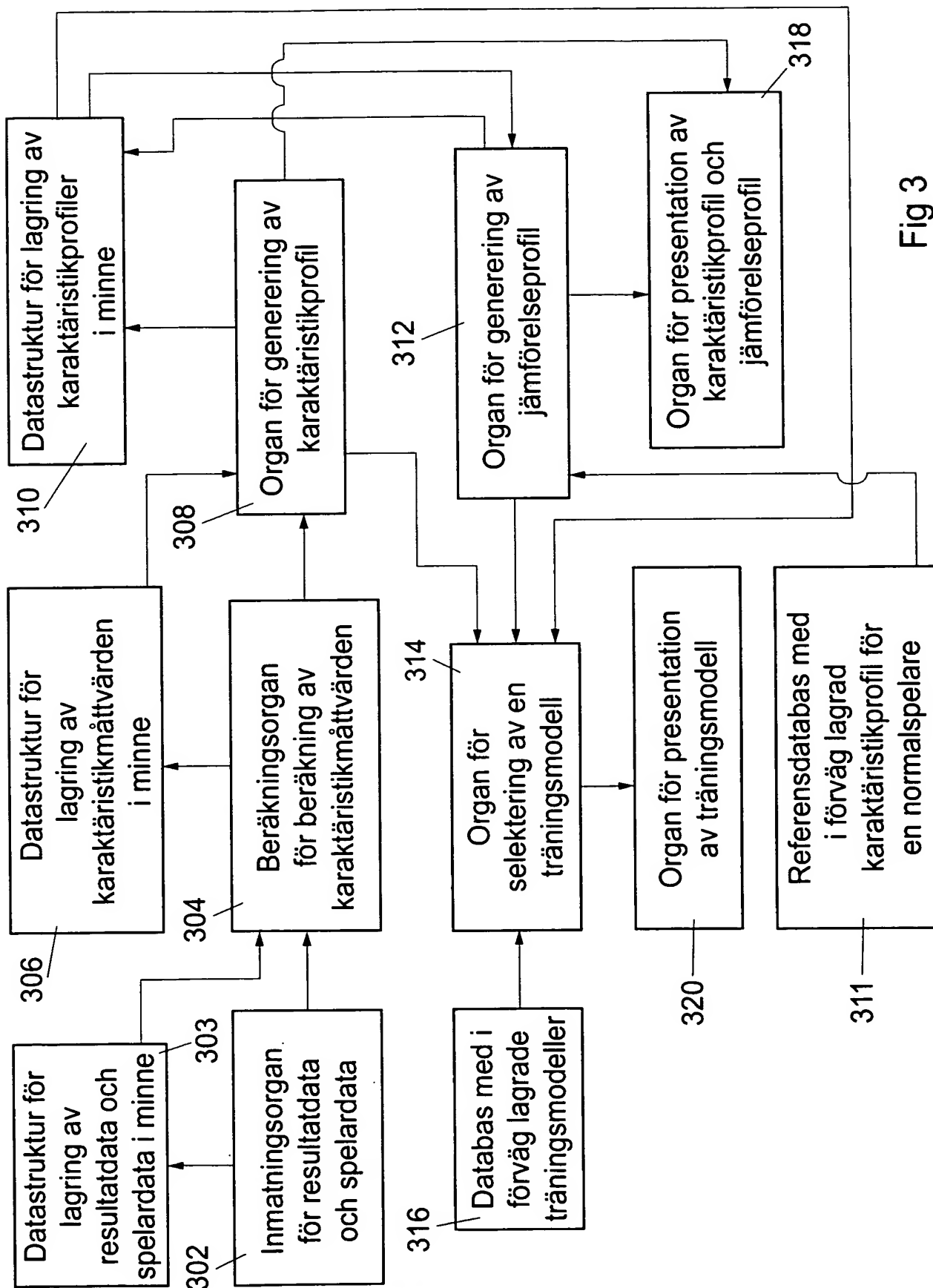


Fig 3

4/9

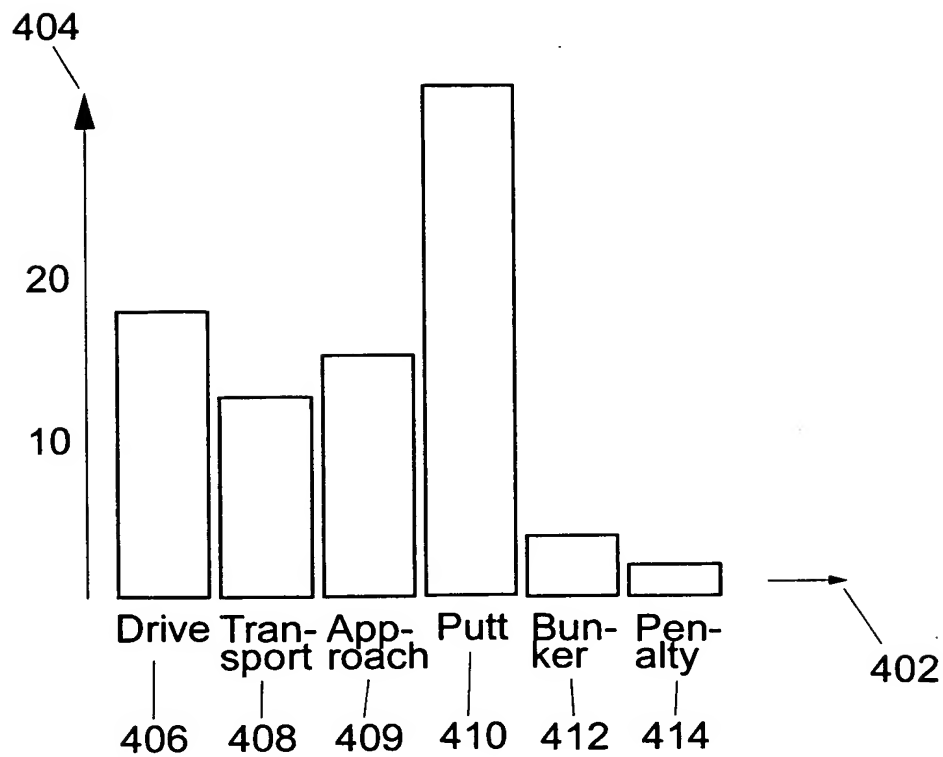


Fig 4

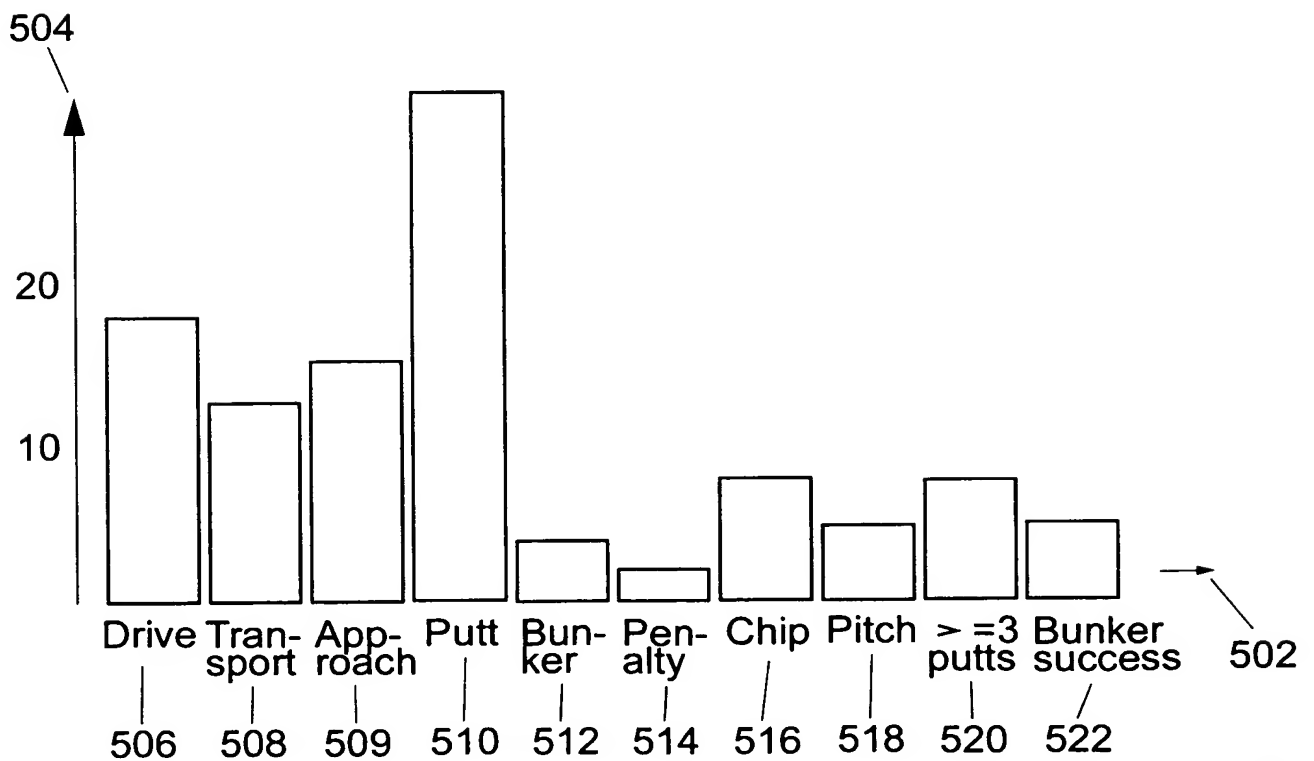
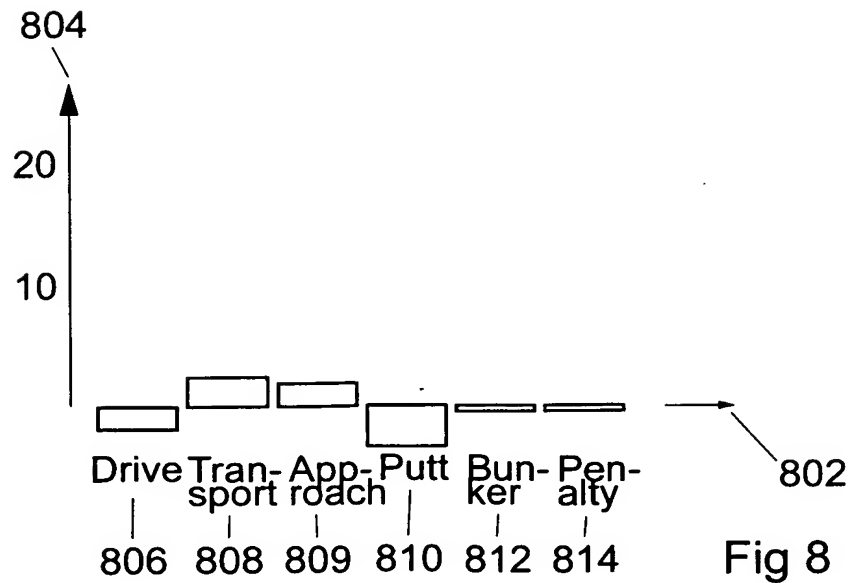
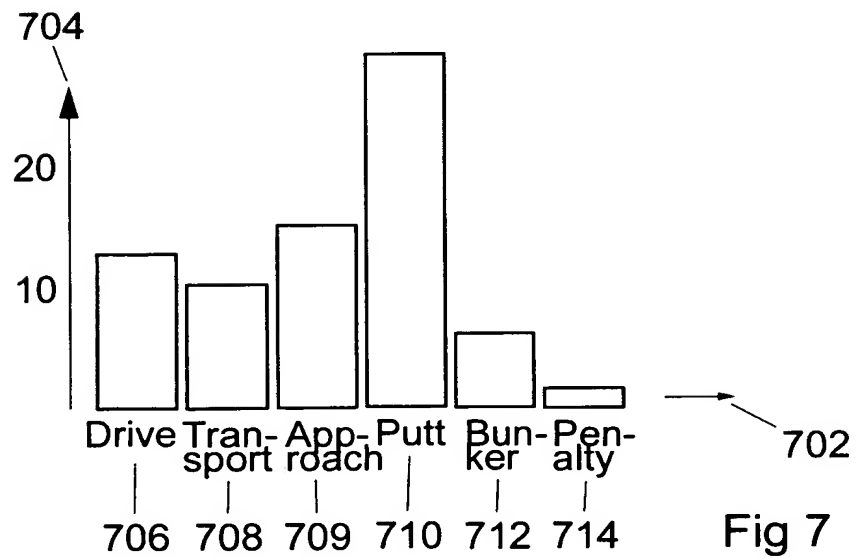
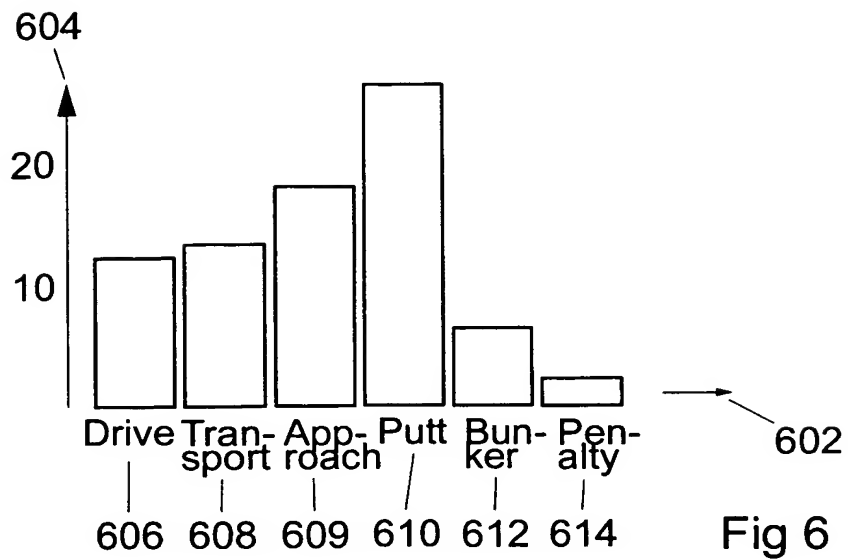


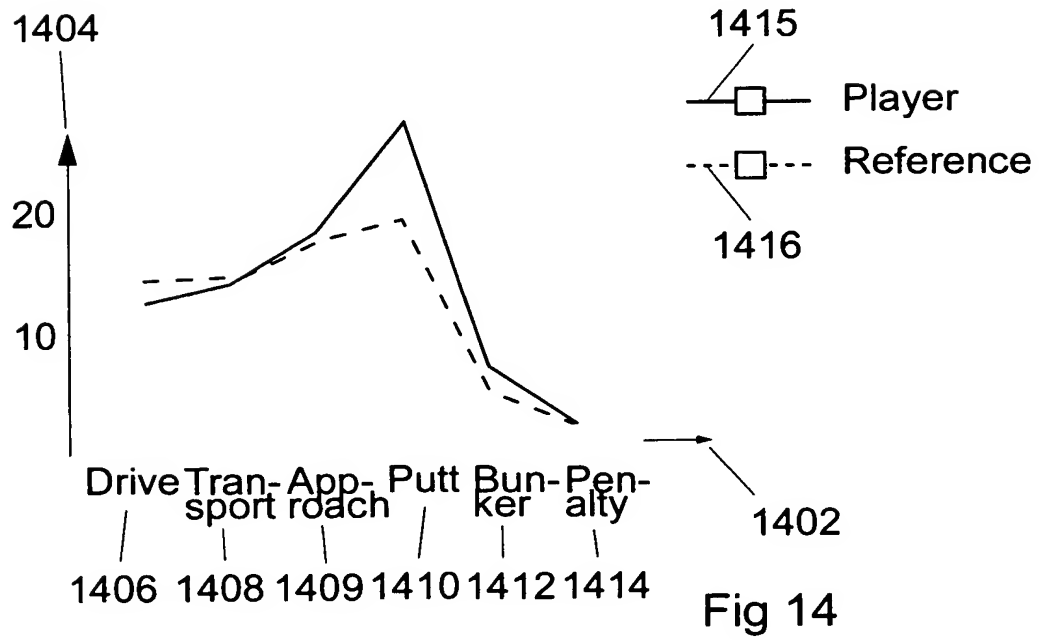
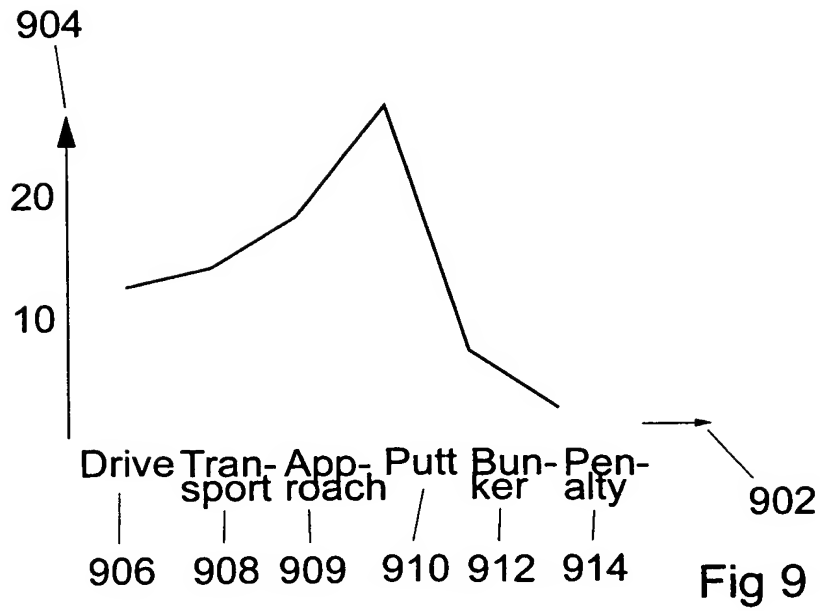
Fig 5

5/9



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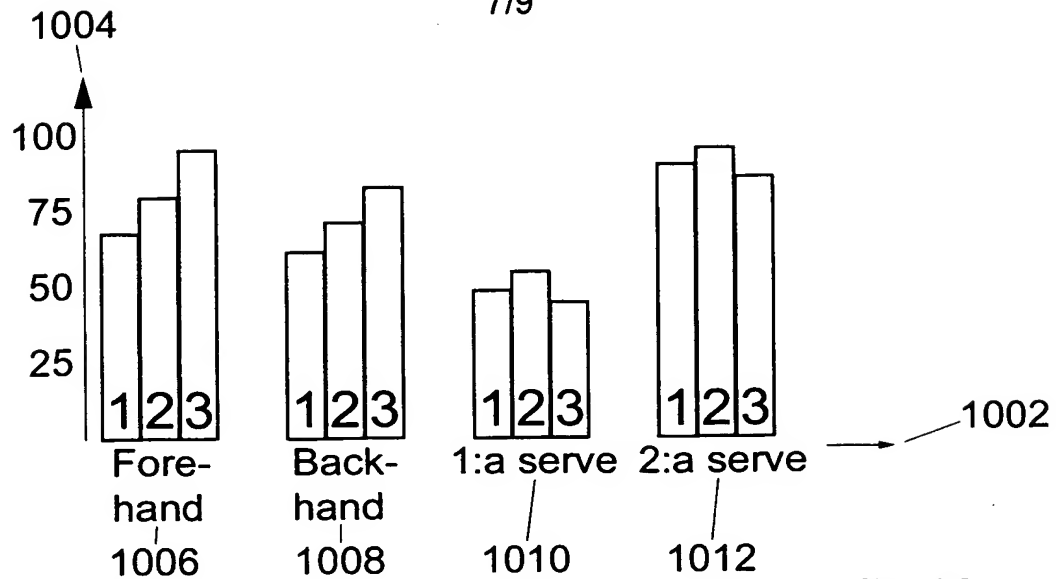


Fig 10

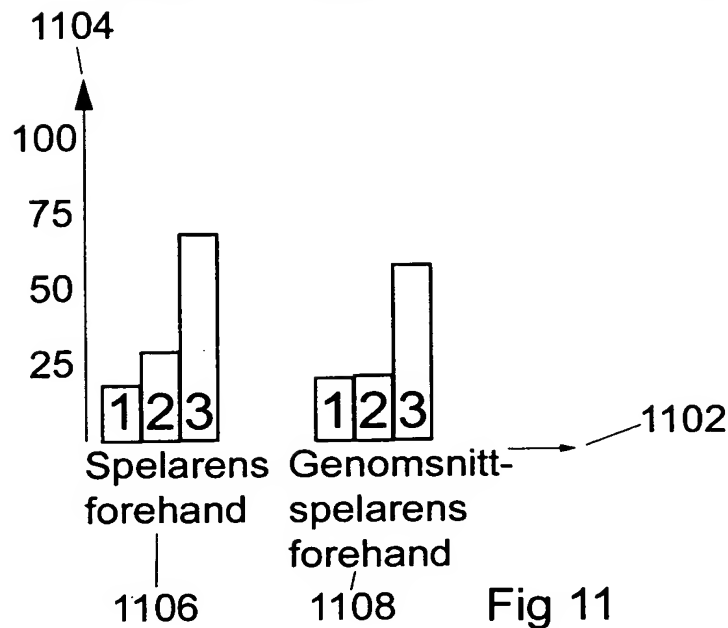


Fig 11



Fig 12



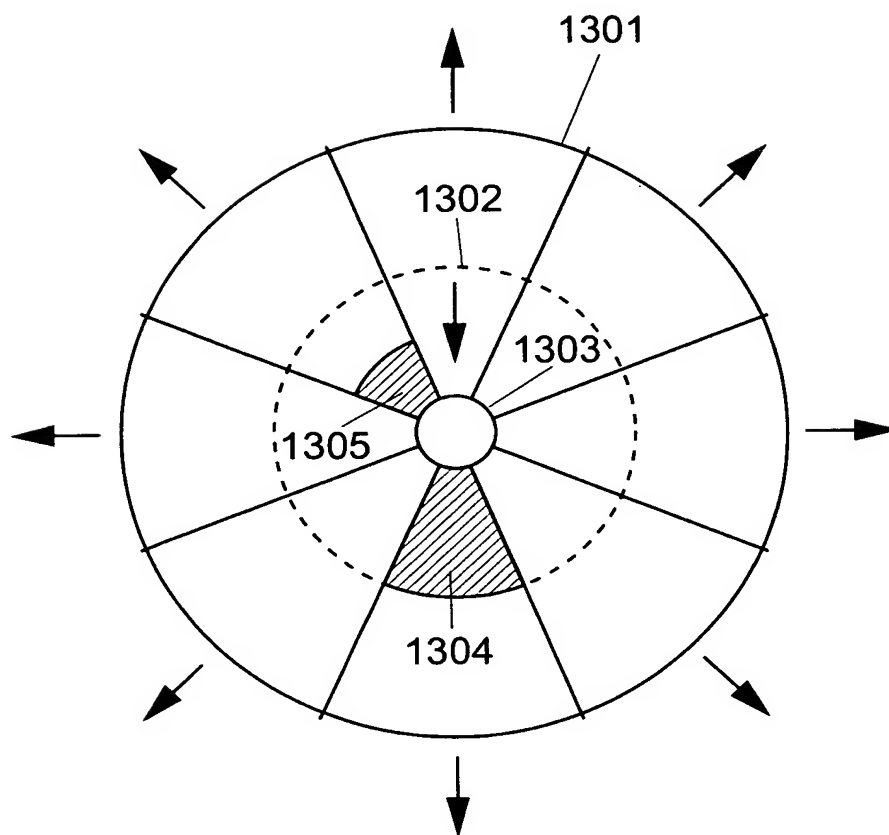
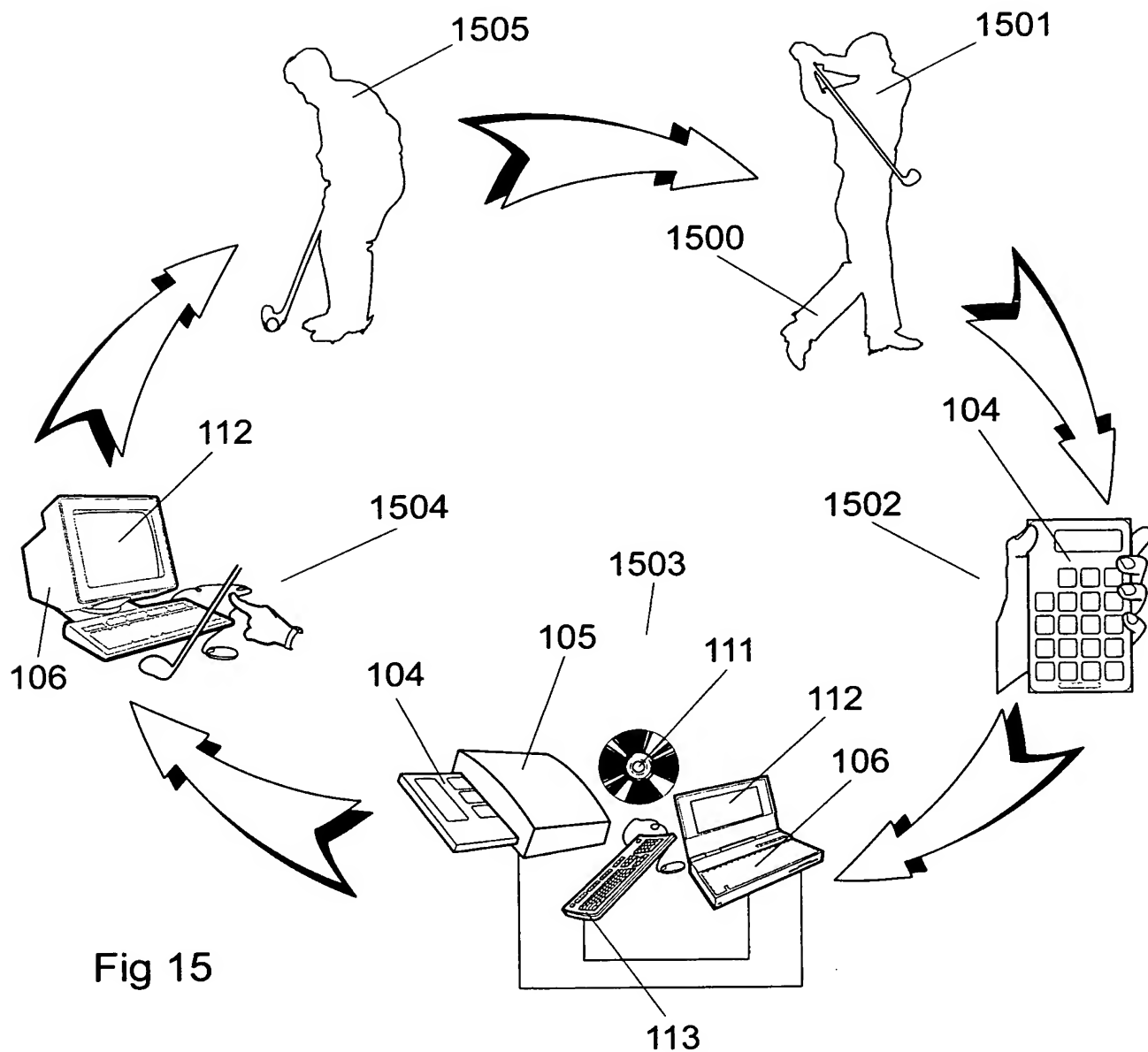


Fig 13



## SYSTEM FÖR REGISTRERING OCH ANALYS AV DATA, SAMT GENERERING AV ÅTGÄRDSPROGRAM

5

### TEKNIKOMRÅDE

Föreliggande uppfinning avser ett system och en metod för att med automatik göra en analys av registrerad data, och tillika att med automatik generera ett åtgärdsprogram i beroende av den registrerade och analyserade datan. Exempelvis  
10 avses registrering och analys av sportutövares spelarresultat och spelaregenskaper, samt generering av åtgärdsprogram innefattande träningsmodeller, i beroende av nämnda analys och av spelstatistik med avseende på olika spelparametrar. Uppfinningen är likaledes applicerbar t ex på administrativa rutiner för insamling och bearbetning av data, i syfte att ta fram lämpliga åtgärder.

15

### TEKNIKENS STÅNDPUNKT

Inom många områden finns det ett behov av att bearbeta insamlad data, och att jämföra den med befintlig statistik, i syfte att kunna göra en rimlig bedömning av den insamlade datan. Exempelvis inom administrativa eller ekonomiska rutiner  
20 vid företag, organisationer, sjukhus eller myndigheter är det ofta förekommande med registrering av data, t ex rörelseresultat, försäljning, personalomsättning e d, från olika parter. Sådana parter kan vara länder, företag, kontorsfilialer, avdelningar, personer osv. Den registrerade datan är ofta svårbedömd ensam, och vissa särdrag eller trender kan vara svåra eller omöjliga att urskilja utan jämförelse med en  
25 likvärdig grupp eller referens. Denna typ av administrativt arbete är ofta både komplicerad och tidsödande, även om resultatet därav kan vara väldigt användbart för värdering eller för applicering av åtgärdsprogram i syfte att förbättra olika parametrar.

Ett annat område inom vilket motsvarande problem föreligger är sport. Det  
30 finns inom de flesta sporter ett behov av att registrera resultat i form av antal poäng, t.ex. i tennis, eller antal slag per bandel eller hål, t.ex. i golf. Denna typ av resultatregistrering är i huvudsak inriktad på att avgöra en vinnare i ett tävlingsmoment. Ett annat behov av resultatregistrering är mer inriktat på att, baserat på registrerad statistik, analysera en spelares eller ett lags spelegenskaper för att antingen jämföra  
35 med motspelares egenskaper eller för att understödja målinriktad träning.

För olika sporter finns det idag en rad olika registreringsdon i form av alltifrån pappersformulär till portabla eller stationära datorenheter. För exempelvis golf finns det portabla elektroniska registreringsdon för lagring av antalet slag per hål, antal puttslag, klubbtyp eller slaglängd med respektive klubba. I en del fall finns det

möjlighet att överföra registrerad resultatdata från ett enklare registreringsdon till en mer sofistikerad dator, t.ex. en persondator, för att underlätta sammanställning och utskrift av statistisk.

Patentskriften US 5,683,303 i namnet Lambourne visar ett elektroniskt  
5 resultatregistreringsdon för golf med vilket kan registreras spelardata såsom namn eller initialer och handicap samt resultatdata såsom varje spelares antal slag per hål, puttslag per hål och vunna eller förlorade hål per match.

Likaså visar patentskriften US 5,795,237 i namnet Miyamoto en elektronisk  
apparat för inmatning av golfbansdata och resultatdata medelst en penna och ett  
10 tangentbord, samt presentation av golfresultat. Denna patentskrift liksom den föregående är huvudsakligen inriktad på registrering av resultatdata.

Ett annat stycke känd teknik, närmare bestämt patentskriften US 5,558,333 i  
namnet Kelson et al visar ett system som är inriktat mer mot spelförbättring  
utgående från resultatdata från verkliga spel. Systemet använder en mikrodator för  
15 att presentera en grafisk representation av en golfbana för att registrera slagplatser. Slaglängd och antal slag registreras tillsammans med annan speldata, för att sedan analyseras med avseende på möjliga förbättringar. Det som presenteras som analys innefattar emellertid enbart en bearbetning av spelarens inmatade data, t ex beräkning och presentation av medelvärden. Detta system är dessutom tämligen  
20 komplext och tar mycket tid i anspråk för användaren.

I "Golfing and your Palm organizer" av Cox i Palm Power Magazine,  
December 1998, [www.palmpower.com/issuesprint/issue199812/golf.html](http://www.palmpower.com/issuesprint/issue199812/golf.html), visas ett  
datorprogram som kan användas med en handdator eller en PC. Med detta  
datorprogram kan spelardata och resultatdata inmatas under en golffronda, och  
25 statistik kan beräknas och presenteras.

I US 5,810,680 i namnet Lobb et al beskrivs en portabel golfregistrerings-  
apparat, innefattande en GPS-mottagare och ett geografiskt informationssystem.  
Apparaten har också kapacitet att beräkna statistik i beroende av resultatdata.

I US 5,882,269 i namnet Lewis beskrivs ett portabelt sportträningshjälp-  
30 medel, t ex i form av en PDA med tillhörande programvara. På hjälpmedlet kan en golfspelare indikera resultatdata slag för slag. Statistik kan beräknas och tränings-  
tips kan ges i beroende av spelarens resultat.

#### SYFTE MED UPPFINNINGEN

35 Uppfinningen syftar till att lösa problemet att tillhandahålla ett system för effektiv karaktärisering av egenskaperna av en utövare av ett visst moment spelar. En aspekt av problemet är att med ledning av egenskapskaraktäristiken tillhandahålla underlag för förbättring av spelaregenskaperna. En annan aspekt av problemet är att tillhandahålla underlag för en idrottsutövare att erhålla en överskådlig och

tillförlitlig presentation av den egna karakteristiken.

### SAMMANFATTNING AV UPPFINNINGEN

Enligt en övergripande aspekt avser uppfinningen ett system för registrering och analysering av data från ett utövat moment, samt generering av åtgärdsprogram i beroende av utförd analys. Momentet kan t ex vara en kvalitetsrevision, en ekonomisk kalkyl eller en spelomgång utav någon sport. I systemet ingår ett inmatningsorgan, i form av ett registreringsdon, för inmatning av resultatdata. Resultatdatan varierar förstås i beroende av utföringsform, men innefattar värden för en eller flera förbestämda parametrar från ett eller flera utförda moment. Ett beräkningsorgan är kopplat till inmatningsorganet och anordnat att för varje nämnd parameter beräkna ett karaktäristikmåttvärde för ett förbestämt karaktäristikmått i beroende av nämnda resultatdata. Detta kan t ex vara måttvärden på statistiska storheter, såsom medelvärden, medianvärden, extremvärden etc, för nämnda parametrar. Ett profilgenereringsorgan, kopplat till nämnda beräkningsorgan, är anordnat att generera en karaktäristikprofil genom att sammanställa nämnda beräknade karaktäristikmåttvärden, och systemet innefattar vidare en referensdatabas med en i förväg lagrad normalkaraktäristikprofil. Nämnda karaktäristikprofil är en profil för en utövare av nämnda moment, medan nämnda normalkaraktäristikprofil är en profil beräknad från en grupp utövare med gemensamma egenskaper, t ex ett genomsnitt, ett medianvärde eller ett extremvärde. Jämförelseorgan, kopplade till profilgenereringsorganet och referensdatabasen, är anordnat att generera en jämförelseprofil genom att jämföra nämnda karaktäristiska profil med nämnda i förväg lagrade normalprofil. Kopplad till profilgenereringsorganet innefattar systemet vidare ett selekteringsorgan anordnat att, i beroende av nämnda karaktäristikprofil eller jämförelseprofil, selektera ett i förväg lagrat åtgärdsprogram.

Enligt en föredragen utföringsform utgår uppfinningen ifrån uppfinnarnas insikt att sådan spelstatistik som förs normalt under en spelomgång vid utövandet av en sport, t.ex. antal slag av olika slagtyp i golf eller tennis, kan utnyttjas för att ta fram en karaktäriserande profil för spelarens egenskaper. Detta bygger på kunskapen att resultatet av en spelomgång inte är slumpmässigt utan naturligtvis är beroende av spelarens skicklighet och brister. Tillförlitligheten i profilen ökar genom att använda spelstatistik från ett antal spelomgångar och beräkna genomsnittsvärden för olika valda parametrar.

I sin mest generella form ingår i uppfinningen ett system och ett förfarande innefattande registrering av resultatdata i form av värden för en eller flera förbestämda spelparametrar från en eller flera genomförda spelomgångar. I exemplet golf är spelparametrarna typiskt olika slagtyper såsom driveslag,

transportslag, approachslag, puttslag, chipslag, bunkerslag eller pliktslag, och parametervärdet typiskt antal slag per slagtyp. Registreringen kan ske med elektroniska eller mekaniska hjälpmedel, eller rent utav med papper och penna. För ett antal valda spelparametrar beräknas ett karaktäristikmåttvärde för ett förbestämt

5 karaktäristikmått, t.ex. antal slag i genomsnitt per runda, totalt och per slagtyp. Därefter genereras en karaktäristikprofil för sportutövarens spelaregenskaper genom att sammanställa nämnda beräknade karaktäristikmåttvärden. Denna profil ger sålunda en karaktäristisk beskrivning av spelstyrkan hos en spelare. För en mänsklig betraktare visualiseras profilen företrädesvis grafiskt i t.ex. i form av ett stapel-

10 diagram eller en kurva, så att exempelvis det genomsnittliga antalet slag per runda och slagtyp tydligt presenteras. Profilerna anpassas för aktuell spelare med avseende på exempelvis ålder, kön, spelstyrka, handicap, ranking eller annan spelaregenskap.

I ett ytterligare steg genereras en jämförelseprofil för sportutövaren genom att jämföra nämnda karaktäristiska profil med en i förväg lagrad normalprofil för en

15 normalspelare, som har motsvarande eller bättre spelardata inom samma åldersgrupp och kön. Denna jämförelseprofil ligger sedan till grund för ytterligare ett steg, varvid automatisk selektering och rekommendation görs av en eller flera i förväg lagrade träningsmodeller eller åtgärdsprogram ämnade att eliminera avvikelser i spelaregenskaper, företrädesvis spelstyrka, från jämförelseprofilen.

20 De valda parametrarna är naturligtvis olika för olika sporter, och sådana parametrar skall väljas som är lämpliga att ange spelarkvalitet ur någon synvinkel. För t.ex. tennis kan det relativa antalet slag per slagtyp, antalet missade slag per slagtyp, bollnedslag och bollträff vara en adekvat parameter.

Olika utföringsformer av uppfinningen innefattar en datorprogramprodukt

25 för styrning av en dator att utföra olika delar av förfarandet och ett system innefattande hårdvara i kombination med programmjukvara.

Övriga särdrag och utföringsformer av uppfinningen framgår av den detaljerade beskrivningen och patentkraven.

### 30 KORTFATTAD BESKRIVNING AV RITNINGARNA

Uppfinningen kommer nu att förklaras ytterligare med hänvisning till följande figurer, vilka visar i:

- Fig 1 ett översiktligt blockschema över en utföringsform av systemet enligt uppfinningen;
- 35 Fig 2 ett flödesschema över stegen enligt en utföringsform av uppfinningen;
- Fig 3 ett översiktligt blockschema över organ innefattade i utföringsformer av uppfinningen;
- Fig 4-7 exempel på karaktäristikprofiler för golfspelare i form av stapeldiagram;
- Fig 8 ett exempel på en jämförelseprofil, närmare bestämt en differensprofil, för en

golfspelare;

Fig 9 ett exempel på en karaktäristikprofil för golfspelare i form av ett kurvdiagram;

Fig 10-12 exempel på karaktäristikprofiler och jämförelseprofiler för tennisspelare;

- 5 Fig 13 ett exempel på en presentation av inmatad och bearbetad riktningdata och längddata för en golfspelare;

Fig 14 ett exempel på en jämförelseprofil, varvid både en karaktäristikprofil för golfspelare och en referensprofil för en normalspelare ges som separata kurvor i ett kurvdiagram;

- 10 Fig 15 en schematisk illustration av en utföringsform av det uppfinningsenliga förfarandet för exemplet golf.

#### DETALJERAD BESKRIVNING AV FÖREDRAGNA UTFÖRINGSFORMER

- Föreliggande uppfinning är som tidigare nämnts applicerbar på en mängd  
15 olika områden. För att på tydligaste sätt beskriva uppfinningen avhandlas i fortsättningen huvudsakligen utföringsformer rörande sport, företrädesvis exemplet golf. Detta skall emellertid inte tolkas som om andra utföringsformer utesluts från uppfinningens omfång. Tvärtom skall de enbart ses som exempel, och för att göra läsaren uppmärksam på en utav de flertal olika tänkbara utföringsformerna följer  
20 längre ned en beskrivning av en utföringsform av uppfinningen rörande området revision inom sjukvårdssektorn.

- I Fig 1 visas en utföringsform av det uppfinningsenliga systemet innefattande ett elektroniskt registreringsdon 104 för inmatning av spelardata 101 och resultatdata 102. Som framgår av figuren inmatas nämnda data via ett tangentbord 107 med  
25 tangenter 114 som medger inmatning av olika typer av information. I sin enklaste form lagrar registreringsdonet endast angiven data i olika kategorier och registreringsdonet skulle utgöras av papper och penna. Registreringsdonet 104 innefattar vidare en enkel display 115 för presentation av inmatad och bearbetad data för användaren. Systemet innefattar vidare en parameterbearbetningsenhet 106,  
30 som i olika utföringsformer helt eller delvis kan vara integrerad med det elektroniska registreringsdonet. I alla händelser innefattar parameterbearbetningsenheten inmatningsorgan 105 för mottagning av resultatdata och eventuellt spelardata. Detta kan exempelvis ske genom ihopkoppling av en datautgång 103 hos registreringsdonet och inmatningsorganet 105. Parameterbearbetningsenheten innefattar vidare  
35 databearbetningsorgan i form av en processor (CPU) 108 och ett minne 109, och innefattar eller är kopplad till en databas 110 som innehåller i förväg lagrade normalprofiler. En presentationsenhet 112 i form av en display eller en skrivare är också kopplad till parameterbearbetningsenheten, liksom företrädesvis ett styr- och datainmatningsorgan 113 i form av ett tangentbord, en mus eller motsvarande. I en

föredragen utföringsform är uppfinningen realiserad i form av en datorprogramprodukt innefattande datorprogramvara, lagrad på ett datalagringsmedium 111 och anordnad att styra ett databearbetningssystem, t.ex. en persondator, att utföra stegen enligt uppfinningen. Parameterbearbetningsenheten är  
5 då normalt realiserad medelst en persondator av känt slag och anordnad enligt uppfinningen medelst datorprogramprodukten.

Fig 2 visar ett översiktligt flödesschema för förfarandet enligt uppfinningen. Efter start 202 innefattar steg nr:

- 204 att registrera resultatdata i form av värden för en eller flera förbestämda spel-
- 10 parametrar från en eller flera genomförda spelomgångar;
- 206 att beräkna för varje nämnd spelparameter ett karaktäristikmåttvärde för ett förbestämt karaktäristikmått;
- 208 att generera en karaktäristikprofil för sportutövarens spelaregenskaper genom att sammanställa nämnda beräknade karaktäristikmåttvärden;
- 15 -210 att om så önskas presentera en grafisk representation av den genererade karaktäristikprofilen;
- 212 att från en databas hämta en normalprofil;
- 214 att generera en jämförelseprofil för sportutövaren genom att jämföra nämnda karaktäristiska profil med en i nämnda databas i förväg lagrad normalprofil för en
- 20 normalspelare. I en utföringsform innefattar detta steg åtgärden att applicera en förbestämd matematisk operation på karaktäristikprofilen och normalprofilen. Jämförelseprofilen kan utföras i form av en differensprofil genereras genom att beräkna skillnaden mellan karaktäristikmåttvärden för varje spelparameter hos karaktäristikprofilen och normalprofilen. I en annan utföringsform genereras en
- 25 jämförelseprofil för sportutövaren genom att för varje spelparameter sammanställa ett aktuellt karaktäristikmåttvärde för sportutövaren, ett lagrat bästa karaktäristikmåttvärde för sportutövaren och ett normalkaraktäristikmåttvärde för en normalspelare;
- 216 att om så önskas presentera en grafisk representation av den genererade
- 30 jämförelseprofilen;
- 220 att selektera, i beroende av nämnda karaktäristikprofil eller jämförelseprofil, ett eller ett flertal i förväg lagrade åtgärdsprogram som eftersöks eller hämtas i steget 218 från en databas med förväg lagrade åtgärdsprogram, företrädesvis i form av träningsmodeller;
- 35 -222 att presentera selekterat åtgärdsprogram för användaren;
- 224 stop och eventuell upprepning av valda steg av de föregående stegen.

I en utföringsform registreras spelardata för sportutövaren; och varvid den nämnda normalprofilen baseras på motsvarande spelardata, exempelvis åldersgrupp, kön, handicap eller ranking. Såsom har nämnts ovan kan karaktäristikprofilen eller



jämförelseprofilen presenteras visuellt i form av ett stapeldiagram med en stapel för varje spelparameter där stapelhöjden motsvarar karaktäristikmåttvärdet, eller i form av ett motsvarande kurvdiagram.

- I utföringsformen från vilken de exemplifierande profilerna i figurerna 4-9 är hämtade är uppfinningen anpassad för analys av en golfspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåttet är antal slag i genomsnitt per runda. I en annan utföringsform från vilken de exemplifierande profilerna i figurerna 10-12 är hämtade är uppfinningen anpassad för analys av en tennisspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåttet är procentuell fördelning av lyckade slag i förhållande till misslyckade.

- Fig 3 visar ett blockschema för en apparat eller en datorprogramprodukt enligt uppfinningen. I apparatutförandet är organen normalt realiserade medelst hårdvarukomponenter eventuellt i kombination med tillhörande mjukvara. I datorprogramprodukten är motsvarande organ normalt realiserade medelst programinstruktionssekvenser som är lagrade på ett lagringsmedium och anordnade att styra ett databearbetningssystem att utföra åtgärderna enligt uppfinningen. Linjerna mellan blocken i blockschemat anger signalkoppling eller kommunikativa kopplingar för signal- eller datakommunikation mellan organen.

- Utföringsformen enligt Fig 3 innefattar inmatningsorgan 302 för inmatning och/eller mottagning av resultatdata och spelardata, samt organ 303 i form av en datastruktur för lagring av nämnda data i ett minne. Vidare innefattas ett beräkningsorgan 304 för beräkning av karaktäristikmåttvärden och ett organ 306 i form av en datastruktur för lagring av nämnda karaktäristikmåttvärden i ett minne. Beräkningsorganet 304 arbetar i beroende av nämnda resultatdata och/eller spelardata från inmatningsorganet 302 eller minnesorganet 303. Ett organ 308 för generering av en karaktäristikprofil arbetar i beroende av karaktäristikmåttvärden från beräkningsorganet 304 eller minnesorganet 306, och lagrar i sin tur genererade karaktäristikprofiler i ett organ 310 i form av en datastruktur för lagring av sådana karaktäristikprofiler i ett minne. I en referensdatabas 311 är datastrukturer för normalprofiler, eller referensprofiler, i förväg lagrade. Vidare tar ett organ 312 för generering av en jämförelseprofil en karaktäristikprofil som indata från minnet 310 och en normalprofil som indata från referensdatabasen 311, och kan i sin tur lagra en jämförelseprofil i ett minnesorgan, t ex 310. I beroende av jämförelseprofilen arbetar sedan ett organ 314 för selektering av ett åtgärdsprogram bland i förväg lagrade åtgärdsprogram i en åtgärdsdatabas 316, företrädesvis en träningsmodellsdatabas. Dessutom innefattas organ 318 för presentation av karaktäristikprofiler och jämförelseprofiler samt organ 320 för presentation av åtgärdsprogram. De funktionellt beskrivna organen är i olika utföringsformer anpassade till de olika

funktioner som beskrivs i andra delar av uppfinningsbeskrivningen.

- Exempel på grafiska presentationer i form av stapeldiagram över karaktäristikprofiler för en golfspelare visas i figurerna 4-9 och 14, där den horisontella axeln 402,502,602,702,802,902,1402 anger spelparametrar såsom slagtyp och den
- 5 vertikala axeln 404,504,604,704,804,904,1404 anger antal slag för en runda, eller företrädesvis i genomsnitt per runda, på en given golfbana. Spelparametrarna är i dessa exempel följande olika slagtyper:
- Drive 406,506,606,706,806,906,1406 som består av ett utslag som inte är avsett att nå fram till golfgreenen med sitt golfhål;
  - 10 -Transport 408,508,608,708,808,908,1408 är beteckningen för en slagtyp som innebär att det är en fortsättning på ett tidigare slag och som inte avses att nå fram till greenen;
  - Approach 409,509,609,709,809,909,1409 är en slagtyp som har som avsikt att nå greenen och som inte spelas från bunker;
  - 15 -Putt 410,510,610,710,810,910,1410 är en slagtyp som används i de sista slagen närmast hålet, huvudsakligen på greenen;
  - Bunker 412,512,612,712,812,912,1412 är en slagtyp som slås från ett grus- eller sandhinder på banan;
  - Penalty 414,514,614,714,814,914,1414 är inget fysiskt slag utan anger hur många
  - 20 extra straffslag man fått genom sitt spel på banan enligt gällande spelregler.

- Fig 4 och Fig 5 visar den aktuella profilen en analyserad spelare. I Fig 5 anges också slagtyperna antalet chipslag 516, dvs. ett kort slag med en järnklubba från en plats i närheten av greenen, pitchslag 518 som innebär att man slår ett kort högt slag med en mycket vinklad klubba och dessutom två mjukvarumässigt
- 25 skapade slagtyper. Den första av de senare visar hur många slag som är orsakade av 3 eller fler puttslag på samma golfhål. Den sista slagtypen visar hur många lyckade bunkerslag man i genomsnitt har per runda. Ett lyckat bunkerslag kan exempelvis definieras av att man har slagit maximalt ett puttslag därefter.

- Fig 6 visar återigen den aktuella profilen för en analyserad spelare och Fig 7
- 30 visar en normalprofil i form av profilen för en genomsnittspelares, med samma kön och handicapnivå. Ur referensdatabasen 311 kan naturligtvis ett flertal olika normalprofiler hämtas, jämför steg 212. Kön, ålder, handicapnivå osv är valbara, varvid en spelare kan jämföra sin egen profil, dvs spelkaraktäristik, med en normalprofil för ett något lägre handicap. Detta ger spelaren en indikation om vad
- 35 han/hon bör förbättra för att nå ett lägre handicap, dvs bli en bättre spelare.

Fig 8 visar en jämförelseprofil i form av differensprofil som ett stapeldiagram där antalet slag i genomsnitt per runda från profilen i Fig 6 har minskats med motsvarande karaktäristikmåttvärden från normalprofilen i Fig 7. Den visade differensprofilen i Fig 8 visar högst värde för slagtyp transport och därefter för

slagtyp approach, och man kan dra slutsatsen att det är lämpligt att välja ett eller flera åtgärdsprogram, dvs träningsmodeller, där dessa slagtyper tränas.

Fig 9 visar samma diagram som Fig 6, men i kurvform. Ett annat sätt att presentera en jämförelseprofil är att i enlighet med figur 14 visa både spelarens  
5 karakteristik och en normalspelares karakteristik, hämtad från referensdatabasen 311. Företrädesvis presenteras staplarna, eller kurvorna som i figuren, med olika strecktyp eller färg för att man enkelt skall kunna skilja dem åt. Den karakteristiska profilen, för de olika fallen, kan naturligtvis representeras i olika diagramformer alltefter vad som ger den lämpligaste visualiseringen.

- 10 Den grafiska presentationen enligt föreliggande uppfinning av spelarens karakteristik tillsammans eller viktad med en normalprofil ger en mycket överskådlig och enkel bild över vilka bitar av spelet som behöver förbättras. Normalprofilen, eller referensprofilen, tar hänsyn till antalet hål med par 3, par 4 och par 5 på den aktuella banan som spelas vid uträkning av spelarens profil, så att den givna  
15 normalprofilen alltid är relevant

- Det föregående, dvs inmatning och beräkning av spelardata, score, slagtyper etc, samt matematisk jämförelse av spelarprofil och normalprofil, kan benämnas systemets analysdel, och ger ett synnerligen användbart redskap för spelaren i dennes strävan att förbättra sitt spel. Enligt uppfinningen innefattar systemet vidare  
20 en träningsdel, varvid inmatad och analyserad data utnyttjas för att aktivt föreslå ett åtgärdsprogram, t ex i form av träningsmodeller för spelaren.

- I en föredragen utföringsform av uppfinningen kan utövaren/spelaren, eller någon annan för den delen, gå från analysdelen av systemet till träningsdelen i parameterbearbetningsenheten 106 via exempelvis en tangenttryckning på ett  
25 tangentbord 113, via ett menyval eller en aktivering av en ikon på presentationsenheten 112.

- I träningsdelen ges råd om rekommenderad träning i beroende av spelarprofil och referensprofil, dvs jämförelseprofilen. I en föredragen utföringsform av uppfinningen ges för ett förbestämt maximalt antal slagtyper, t ex 5, en eller ett  
30 flertal övningsförslag, vilka övningsförslag är åtkomliga via en tangenttryckning, ett menyval eller en ikonaktivering. De övningar som är lagrade i träningsdatabasen 316 är sammansatta av golfpron, vilket borgar för hög och tillförlitlig kvalitet. En eller flera träningsmodeller med instruktioner och bilder kan således ges för en given jämförelseprofil, och dessa träningsmodeller kan också vara kombinerade för  
35 att ge en mer komplett träning inom ett område där brister detekterats.

De parametrar i beroende av vilka övningar föreslås av systemets träningsdel är t ex kön, HCP (handicap) och område, dvs bana, range etc. Företrädesvis hämtas all eller merparten av denna information från analysdelen av systemet, men denna information kan också matas in direkt i träningsdelen via ett tangentbord 113 e d.

För varje föreslagen övning visas på presentationsenheten 112, eller på en utskrift om så önskas, en skriftlig instruktion och företrädesvis en eller flera bilder för att göra instruktionen så tydlig som möjligt. Dessutom åtföljs varje föreslagen övning av en kommentar om vilka spelartyper, områden, HCP-nivåer osv som övningen är  
5 lämplig för.

I en utföringsform av uppfinningen är systemets analysdel och/eller dess träningsdel åtkomliga från en Internetportal, tillhörande en tjänsteförmedlare. Behörighet till portalen kan exempelvis styras med abonnemang, i kombination med användarnamn och lösenord på känt vis. I en föredragen utföringsform kan  
10 spelare också e-posta sina registrerade spelresultat tillsammans med aktuell spelardata till tjänsteförmedlaren som administrerar Internetportalen och referensdatabasen 311. Tjänsteförmedlaren kan därvid lagra spelarens data i referensdatabasen 311, åtkomlig via portalen, och därvid öka referensdatabasens statistiska noggrannhet och mångfald av spelartyper.

I en utföringsform av föreliggande uppfinning kan registreringsdonet 104  
15 också användas för registrering av längd och riktning för golfslag. I en föredragen utföringsform är detta genomförbart med siffertangenterna 114 indikerande siffrorna 1 – 9 på tangentbordet 107 såsom illustreras i figur 1. Siffrorna 1 – 9 används för att indikera ett korrekt slag, dvs ett slag eller en putt som hamnar där man avsåg,  
20 inom någon tolerans som kan vara subjektiv. Siffrorna 8 markerar ett rakt men för långt slag medan siffrorna 2 markerar ett rakt men för kort slag. Analogt indikerar siffrorna 4 och 6 lagom långa slag, men som där 4 indikerar snett vänster och 6 snett höger. Följaktligen indikerar siffrorna 1, 3, 7 och 9 slag som både är för korta eller långa, och som är sneda åt vänster eller höger. Företrädesvis föregås inmatning av  
25 riktningsinformation på registreringsdonet 104 av en knapptryckning på därför avsedd knapp på tangentbordet 107 som förbereder registreringsdonet på att riktningsdata kommer.

I figur 13 visas ett exempel enligt en utföringsform av uppfinningen hur inmatad och bearbetad längd- och riktningsdata kan presenteras i systemet.  
30 Bedömning av riktning och längd kan göras för alla typer av slag, och presenteras företrädesvis för en slagtyp i taget. I figuren 13 representerar varje sektor inmatning med ovan nämnda tangenter 1 – 9. Den yttre ringen 1301 motsvarar 100% av slagen i aktuell sektor, medan den streckade linjen 1302 representerar 50%. I den inre cirkeln 1303 indikeras företrädesvis med procenttal hur stor andel av illustrerad  
35 slagtyp som varit korrekt. Ur figuren framgår det att spelaren ansett 25% av sina slag av aktuell slagtyp varit korrekta. Märk väl att detta kan vara fallet för puttar även om man inte enputtat. Även en putt som stannar inom t ex en halv meter från koppen kan anses vara korrekt om den slagits från kanske 5 meter eller mer. Vidare framgår av figuren 13 att spelaren slagit 50% av slagen rakt men för kort, indikerat

av att sektorn 1304 är fylld till den streckade linjen 1302. Resterande 25% av slagen har varit långa och sneda åt vänster, indikerat av att sektorn 1305 är fylld halvvägs ut till linjen 1302. Genom att från denna presentation i analysdelen välja att gå in i övningsdelen ger systemet automatiskt förslag till övningar för att överkomma de registrerade problemen. Det är underförstått att presentationen av riktningsdatan likaledes kan ske med vanlig sifferangivelse och klartext.

I figur 15 visas schematiskt förfarandet för en föredragen utföringsform av uppfinningen. En spelare 1500 spelar i steg 1501 en eller ett flertal rondor golf, med samtidig registrering av sin score i registreringsdonet 104 i steg 1502. I donet 104 har spelaren också inmatat spelardata såsom kön och antal erhållna slag på den aktuella banan. Spelaren 1500 registrerar för varje slag slagtyp, och i en utföringsform också om spelaren är nöjd eller missnöjd med slaget. Likaså kan riktningen registreras på ovan nämnda vis.

Efter avslutad runda, eller ett flertal rondor, överförs den registrerade resultatdatan tillsammans med spelardatan till en dator 106, t ex en PC, via ett inmatningsorgan 105, eller överförs den registrerade resultatdatan tillsammans med spelardatan direkt till tjänsteförmedlarens Internetportal via inmatningsorgan 105. Såsom tidigare nämnts kan parameterbearbetningsenheten vara funktionellt delad mellan registreringsdonet 104 och datorn 106. Sätillvida kan viss bearbetning göras redan i registreringsdonet 104, t ex beräkning av nettoscore, så att registreringsdonet också kan användas som ett traditionellt scorekort.

Till datorn 106 är företrädesvis ett tangentbord och/eller en mus 113 kopplad. Datainmatningsorganet 105 är i en föredragen utföringsform en elektronisk ficka med en läsare, i vilken ficka registreringsdonet 104 placeras varefter på registreringsdonet 104 lagrad information automatiskt eller användarinitierat avläses och lagras i datorn 106. Avläsningen kan förstås i alternativa utföringsformer även ske trådlöst med IR, Bluetooth e d.

På ett lagringsmedium 111, t ex en CD-ROM eller en server anpassad för generering av en portal, är programvara för att driva nämnda dator 106 till att utföra det uppfinningsenliga förfarandet i systemets analysdel och träningsdel lagrad. Databasen 311 med referensprofiler och databasen 316 med träningsmodeller kan också vara lagrade på nämnda lagringsmedium 111, eller vara åtkomliga via ett datanätverk, t ex Internet, från en annan lagringsplats.

I datorn 106 kan den tidigare beskrivna analysdelen utföras och presenteras för spelaren på skärmen 112 eller på en utskrift. Med hjälp av tangentbordet/musen 113 kan spelaren sedan välja att gå in i träningsdelen 1504, varvid relevanta övningar presenteras på skärmen 112. Genom att studera instruktionerna och bilderna som presenteras för varje övningsmoment i träningsdelen kan spelaren utföra ändamålsenlig träning i steg 1505, varefter han/hon kan komma bättre rustad

till nästa runda eller antal rondor 1501. Systemet enligt föreliggande uppfinning ger således idrottsutövare ett tidigare icke erbjudet förfarande för analys och träningshjälp för förbättring av sitt spel.

Figurerna 10-12 visar exempel på karaktäristikprofiler genererade av en utföringsform av uppfinningen anpassad för tennis. Fig 10 visar hur olika slagtyper såsom forehand 1006, backhand 1008, 1:a serve 1010 respektive 2:a serve 1012 angivna på den horisontella axeln fördelar sig procentuellt med avseende på lyckade slag i förhållande till misslyckade slag för en aktuell period. I profilen jämförs ett aktuellt resultat (stapel markerad 1) med t.ex. spelarens egen bästa notering (stapel markerad 2) och en genomsnittsspelare (stapel markerad 3) med exempelvis samma kön, åldersgrupp eller rankingnivå.

I figur 11 karaktäriseras på samma sätt den aktuella spelarens forehandslag, under den aktuella matchen eller perioden, med avseende på den procentuella andelen dödande slag (stapel markerad 1), missade slag (stapel markerad 2) och slag i banan (stapel markerad 3). I diagrammet jämförs dessa också med en genomsnittsspelare med samma kön, ev. åldersgrupp och t.ex. rankingnivå, och i figur 12 karaktäriseras på samma sätt anfallsspelet hos en tennisspelare. De slagtyper, för anfallsspel, som visas är efter studs i banan, 1:a volley, 2:a volley och smash.

I ett exempel på en utföringsform som inte berör sport, kan uppfinningen appliceras på momentet revision av journalskrivning inom sjukvårdssektorn. En person som utför revisionen, här kallad en kvalitetsrevisor, följer en sjuksköterska i dennes arbete när det gäller hantering av patientjournaler. Kvalitetsrevisorn medför ett registreringsorgan, företrädesvis en elektronisk dosa, på vilken kvalitetsrevisorn inmatar resultatdata för givna parametrar, t ex i form av värden inmatade med dosans numeriska tangentbord, eller i form av Ja och Nej som svar på förbestämda kontrollpunkter, vilka kontrollpunkter kan vara angivna som frågor på insidan av fodralet till dosan. Exempel på frågor kan vara:

- Är tidsangivelserna i journalen läsbara?
- Kontrolleras patientens identitet?
- 30 - Signerar sköterskan journalen?

Efter avslutad revision överförs den registrerade datan till en PC, där sammanställning och beräkning av statistik i beroende av resultatdatan utförs av ett profilgenereringsorgan, varefter statistiken presenteras i form av siffror eller diagram. Ett jämförelseorgan i PC:n är därefter anordnat att jämföra den beräknade statistiken med en i förväg given normalprofil, t ex ett genomsnitt taget från ett flertal olika sjukhus, eller ett genomsnitt eller en tendenskurva för det aktuella sjukhuset för föregående journalrevisioner.

Analysresultatet, dvs jämförelsen med normalprofilen, används sedan av ett program i datorn för att bland ett flertal i förväg lagrad åtgärdsprogram för journal-

revisioner, selektera ett åtgärdsprogram som är anpassat för att överkomma brister som detekterats vid den genomförda jämförelsen.

I en föredragen utföringsform inom området journalrevision lagras alla revisionsresultat på en Internetportal, där behörighet för tillgång till resultaten delas ut av ansvariga personer. T ex kan en nationell enhet ha tillträde till samtliga revisioner medan en avdelning enbart har tillträde till sina egna revisionsresultat. En sjukhuschef har behörighet till samtliga revisioner på sjukhuset. I en alternativ utföringsform kan revisionsresultat lagras på respektive sjukhus centraldator, och vidarebefordras till andra sjukhus, myndigheter, osv därifrån.

I en utföringsform av uppfinningen, som är applicerbar både inom sport, administrativa rutiner, undervisning etc, innefattar åtgärdsprogrammet ett test som anpassats efter de från analysdelen detekterade svagheter, t ex ett test utav det slag där frågor skall besvaras skriftligt eller muntligt, eller med flervalsalternativ. Testet exekveras företrädesvis på utövarens dator 106 och visas på skärmen 112 eller spelas upp på en högtalare. Testet kan också exekveras i en server anordnad i ett kommunikationsnät, t ex Internet, till vilket datorn 106 är anslutbar. Testet är då företrädesvis åtkomligt från datorn 106 via en Internetportal. Företrädesvis rättas testet av mjukvaran i datorn/servern, och resultatet presenteras på skärmen 112 för spelaren. Även testresultatet kan presenteras som en profil för spelaren, vilken viktas eller presenteras samtidigt med en normalprofil. Normalprofilen kan representera en statistisk storhet inom en given grupp, t ex en klass, och kan vara ett medelvärde, ett minvärde e d. I en utföringsform av uppfinningen representeras således det moment som utövas av ett teoretiskt test inom ett givet ämne. För varje fråga eller ämnesområde, vilket utgör parametrar, registreras utövarens svar som resultatdata i ett inmatningsorgan 104,105,302. Ett beräkningsorgan 106,304 är kopplat till inmatningsorganet och anordnat att för varje nämnd parameter beräkna ett karaktäristikmåttvärde för ett förbestämt karaktäristikmått i beroende av nämnda resultatdata. Sådana karaktäristikmått kan vara antal rätt inom ett ämnesområde, andelen fullständigt korrekt besvarade frågor i testet e d. Ett profilgenereringsorgan 106,308, kopplat till nämnda beräkningsorgan, är anordnat att generera en karaktäristikprofil genom att sammanställa nämnda beräknade karaktäristikmåttvärden. Ett jämförelseorgan 312, kopplade till profilgenereringsorganet, är anordnat att generera en jämförelseprofil genom att jämföra nämnda karaktäristiska profil med en i förväg lagrad normalprofil tagen från en referensdatabas 311. Normalprofilen kan vara ett medelvärde från en given grupp, t ex en klass, eller sammansatt data för utövaren tagen från tidigare test, eller liknande. Företrädesvis är selekteringsorgan 314 kopplad till profilgenereringsorganet 308 och/eller jämförelseorganet 312 och/eller ett minne innehållande en profildatastruktur 310, och anordnat att, i beroende av nämnda karaktäristikprofil eller jämförelseprofil, selektera ett i förväg

lagrat åtgärdsprogram för utövaren. Åtgärdsprogrammet är företrädesvis en serie övningar som är anpassade för att överkomma de svagheter som detekterats vid nämnda jämförelse, och dessa övningar kan vara både praktiska och teoretiska.

- Det skall inses att de beskrivna områdena för de exemplifierad utförings-
- 5 formerna, och de olika sporterna, endast är exempel och att en likartad typ av spelparametrar kan definieras för andra områden och för andra sporter såsom dart, biljard och många fler, och karaktäristikprofiler framställas genom tillämpning av uppfinningen.



## PATENTKRAV

1. Ett system för registrering och analysering av data från ett utövat moment, samt generering av åtgärdsprogram i beroende av utförd analys, **kännetecknat av:**
  - 5 - ett inmatningsorgan (104,105,302) för inmatning av resultatdata för en eller flera förbestämda parametrar från ett eller flera utförda moment;
  - ett beräkningsorgan (106,304), kopplat till inmatningsorganet och anordnat att för varje nämnd parameter beräkna ett karaktäristikmåttvärde för ett förbestämt karaktäristikmått i beroende av nämnda resultatdata;
  - 10 - ett profilgenereringsorgan (106,308), kopplat till nämnda beräkningsorgan och anordnat att generera en karaktäristikprofil genom att sammanställa nämnda beräknade karaktäristikmåttvärden;
  - en referensdatabas (311) med en i förväg lagrad normalkaraktäristikprofil;
  - jämförelseorgan (312), kopplade till profilgenereringsorganet och referens-
  - 15 databasen, och anordnat att generera en jämförelseprofil genom att jämföra nämnda karaktäristiska profil med nämnda i förväg lagrade normalprofil.
2. Systemet enligt krav 1, varvid ett organ (318) för presentation av jämförelseprofilen är anordnat att grafiskt presentera jämförelseprofilen på en presenta-
- 20 tionsenhet (112).
3. Systemet enligt krav 1 eller 2, varvid jämförelseorganet är anordnat att generera en jämförelseprofil genom att applicera en förbestämd matematisk operation på karaktäristikprofilen och normalprofilen.
- 25
4. Systemet enligt krav 3, varvid jämförelseorganet är anordnat att generera en jämförelseprofil i form av en differensprofil (804) genom att beräkna skillnaden mellan karaktäristikmåttvärden för varje parameter (806,808,809,810,812,814) hos karaktäristikprofilen och normalprofilen.
- 30
5. Systemet enligt krav 2, varvid nämnda organ (318) för presentation av jämförelseprofilen är anordnat att för varje parameter (1406,1408,1409,1410,1412,1414) åskådliggöra ett aktuellt karaktäristikmåttvärde (1415) och ett normalkaraktäristikmåttvärde (1416) i samma diagram.
- 35
6. Systemet enligt krav 1, vidare innefattande selekteringsorgan (314) kopplad till profilgenereringsorganet (308) och/eller jämförelseorganet (312) och/eller ett minne innehållande en profildatastruktur (310) och anordnat att, i beroende av nämnda karaktäristikprofil eller jämförelseprofil, selektera ett i förväg lagrat åtgärds-

program.

7. Systemet enligt krav 1, där nämnda karaktäristikprofil är en profil för en utövare av nämnda moment, medan nämnda normalkaraktäristikprofil är en profil beräknad från en grupp utövare med gemensamma egenskaper.

8. Systemet enligt krav 7, där nämnda normalkaraktäristikprofil är en profil för en genomsnittlig utövare inom nämnda grupp.

9. Systemet enligt krav 7 eller 8, där nämnda utövare är en sportutövare, nämnda moment är en spelomgång av nämnda sport, nämnda parameter är en spelparameter och nämnda åtgärdsprogram är en träningsmodell för förbättring av utövarens spelaregenskaper inom nämnda sport.

10. Systemet enligt krav 9, vidare innefattande organ (302) anordnat för inmatning av spelardata för sportutövaren, och varvid den nämnda normalprofil är baserad på motsvarande spelardata, exempelvis åldersgrupp, kön, handicap eller ranking.

11. Systemet enligt krav 10, varvid nämnda organ (318) för presentation av jämförelseprofilen vidare är anordnat att på nämnda presentationsenhet (112) visuellt presentera karaktäristikprofilen eller jämförelseprofilen i form av ett stapeldiagram (404,504,604,704,804,1004,1104,1204) med en stapel för varje spelparameter där stapelhöjden motsvarar karaktäristikmåttvärdet.

12. Systemet enligt krav 10, varvid nämnda organ (318) för presentation av jämförelseprofilen vidare är anordnat att på nämnda presentationsenhet (112) visuellt presentera karaktäristikprofilen eller jämförelseprofilen i form av en kurva (904,1404), där kurvhöjden för varje spelparameter motsvarar karaktäristikmåttvärdet.

13. Systemet enligt krav 10, vilket är anpassat för analys av en golfspelares spel-egenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåtten antal slag i genomsnitt per runda.

14. Systemet enligt krav 10, vilket är anpassat för analys av en tennisspelares spel-egenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåtten procentuell fördelning av lyckade slag i förhållande till misslyckade.

15. Systemet enligt kravet 10, vidare innefattande organ (314) för upprätthållande av

en datastruktur för lagring av karaktäristikmåttvärden i ett minne (110).

16. Systemet enligt kravet 10, vidare innefattande organ (310) för upprätthållande av en datastruktur för lagring av karaktäristikprofiler i ett minne (110).

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17. En datorprogramprodukt, för användning tillsammans med ett databearbetnings-system (106), för registrering och analysering av data från ett utövat moment, samt generering av åtgärdsprogram i beroende av utförd analys, innefattande -ett datalagringsmedium (111),

10 **kännetecknad av:**

-organ (302), lagrade på lagringsmediet, anordnade att styra databearbetnings-systemet att ta emot inmatning av resultatdata för en eller flera förbestämda parametrar från ett eller flera genomförda moment;

15 -beräkningsorgan (114,304), lagrade på lagringsmediet, anordnade att styra data-bearbetningssystemet att för varje nämnd parameter beräkna ett karaktäristik-måttvärde för ett förbestämt karaktäristikmått i beroende av nämnda resultatdata;

- ett profilgenereringsorgan (114,308), lagrade på lagringsmediet, anordnade att styra databearbetningssystemet att generera en karaktäristikprofil genom att sammanställa nämnda beräknade karaktäristikmåttvärden,

20 - jämförelseorgan (312), lagrade på lagringsmediet, anordnade att styra databearbet-ningsystemet att generera en jämförelseprofil för genom att jämföra nämnda karaktäristiska profil med en i förväg i en referensdatabas (311) lagrad normalprofil

25 18. Datorprogramprodukten enligt krav 17, varvid ett på lagringsmediet lagrat organ (318) för presentation av jämförelseprofilen är anordnat att grafiskt presentera jämförelseprofilen på en till databearbetningssystemet kopplad presentationsenhet (112).

30 19. Datorprogramprodukten enligt krav 17 eller 18, varvid jämförelseorganen är anordnade att styra databearbetningssystemet att generera en jämförelseprofil genom att applicera en förbestämd matematisk operation på karaktäristikprofilen och normalprofilen.

35 20. Datorprogramprodukten enligt krav 19, jämförelseorganet är anordnat att generera en jämförelseprofil i form av en differensprofil (804) genom att beräkna skillnaden mellan karaktäristikmåttvärden för varje parameter (806,808,809,810,812,814) hos karaktäristikprofilen och normalprofilen.

21. Datorprogramprodukten enligt krav 17 eller 18, varvid nämnda organ (318) för presentation av jämförelseprofilen är anordnat att för varje parameter (1406,1408,1409,1410,1412,1414) åskådliggöra ett aktuellt karaktäristikmåttvärde och ett normalkaraktäristikmåttvärde i samma diagram (1404).

5

22. Datorprogramprodukten enligt krav 17 vidare innefattande selekteringsorgan (314), lagrade på lagringsmediet, anordnade att styra databearbetningssystemet att selektera, i beroende av nämnda karaktäristikprofil eller jämförelseprofil, ett i förväg lagrat åtgärdsprogram.

10

23. Datorprogramprodukten enligt krav 17, där nämnda karaktäristikprofil är en profil för en utövare av nämnda moment, medan nämnda normalkaraktäristikprofil är en profil beräknad från en grupp utövare med gemensamma egenskaper.

15 24. Datorprogramprodukten enligt krav 23, där nämnda normalprofil är en profil för en genomsnittlig utövare inom nämnda grupp.

25. Datorprogramprodukten enligt något av kraven 17 – 24, där nämnda utövare är en sportutövare, nämnda moment är en spelomgång av nämnda sport, nämnda  
20 parameter är en spelparameter och nämnda åtgärdsprogram är en träningsmodell för förbättring av utövarens spelaregenskaper inom nämnda sport.

26. Datorprogramprodukten enligt krav 25, vidare innefattande organ (302), lagrade på lagringsmediet, anordnade att styra databearbetningssystemet för mottagning av  
25 inmatad spelardata för sportutövaren; och varvid den nämnda normalprofilen är baserad på motsvarande spelardata, exempelvis åldersgrupp, kön, handicap eller ranking.

27. Datorprogramprodukten enligt krav 25, varvid nämnda organ (318) för  
30 presentation av jämförelseprofilen vidare är anordnat att på nämnda presentationsenhet (112) visuellt presentera karaktäristikprofilen eller jämförelseprofilen i form av ett stapeldiagram (404,504,604,704,804,1004,1104,1204) med en stapel för varje spelparameter där stapelhöjden motsvarar karaktäristikmåttvärdet.

35 28. Datorprogramprodukten enligt krav 23, varvid nämnda organ (318) för presentation av jämförelseprofilen vidare är anordnat att på nämnda presentationsenhet (112) visuellt presentera karaktäristikprofilen eller jämförelseprofilen i form av en kurva (904,1404), där kurvhöjden för varje spelparameter motsvarar karaktäristikmåttvärdet.

29. Datorprogramprodukten enligt krav 25, vilket vidare är anpassat för analys av en golfspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmättet är antal slag i genomsnitt per runda.
- 5
30. Datorprogramprodukten enligt krav 25, vilket är anpassat för analys av en tennisspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmättet är procentuell fördelning av lyckade slag i förhållande till misslyckade.
- 10
31. Datorprogramprodukten enligt kravet 25, vidare innefattande organ (314), lagrade på lagringsmediet, anordnade att styra databearbetningssystemet att upprätthålla en datastruktur för lagring av karaktäristikmåttvärden i ett minne (110).
- 15
32. Datorprogramprodukten enligt kravet 25, vidare innefattande organ (310), lagrade på lagringsmediet, anordnade att styra databearbetningssystemet att upprätthålla en datastruktur för lagring av karaktäristikprofiler i ett minne (110).
- 20
33. Ett förfarande för registrering och analysering av data från ett utövat moment, samt generering av åtgärdsprogram i beroende av utförd analys,  
**kännetecknat av stegen att:**
- registrera resultatdata (204) för en eller flera förbestämda parametrar från ett eller flera genomförda moment;
  - beräkna (206) för varje nämnd parameter ett karaktäristikmåttvärde för ett
  - 25 förbestämt karaktäristikmått;
  - generera (298) en karaktäristikprofil genom att sammanställa nämnda beräknade karaktäristikmåttvärden;
  - generera en jämförelseprofil (214) genom att jämföra nämnda karaktäristiska profil med en i förväg lagrad normalprofil.
- 30
34. Förfarandet enligt krav 33, vidare innefattande steget att grafiskt presentera (216) jämförelseprofilen på en till databearbetningssystemet kopplad presentationsenhet.
- 35
35. Förfarandet enligt krav 33 eller 34, vidare innefattande steget att generera en jämförelseprofil genom att applicera en förbestämd matematisk operation på karaktäristikprofilen och normalprofilen.
36. Förfarandet enligt krav 34, varvid en jämförelseprofil i form av en differens-

profil genereras genom att beräkna skillnaden mellan karaktäristikmåttvärden för varje parameter hos karaktäristikprofilen och normalprofilen.

37. Förfarandet enligt krav 34, vidare innefattande steget att för varje parameter  
5 åskådliggöra ett aktuellt karaktäristikmåttvärde och ett normalkaraktäristik-  
måttvärde i samma diagram.
38. Förfarandet enligt krav 33, vidare innefattande steget att selektera (220), i  
beroende av nämnda karaktäristikprofil eller jämförelseprofil, ett i förväg lagrat  
10 åtgärdsprogram.
39. Förfarandet enligt krav 38, vidare innefattande steget att visuellt presentera  
(222) instruktioner och bilder tillhörande aktuellt åtgärdsprogram.
- 15 40. Förfarandet enligt krav 33, där nämnda karaktäristikprofil är en profil för en  
utövare av nämnda moment, medan nämnda normalkaraktäristikprofil är en profil  
beräknad från en grupp utövare med gemensamma egenskaper.
41. Förfarandet enligt krav 34, där nämnda normalprofil är en profil för en genom-  
20 snittlig utövare inom nämnda grupp.
42. Förfarandet enligt något av kraven 33 – 41, där nämnda utövare är en sport-  
utövare, nämnda moment är en spelomgång av nämnda sport, nämnda parameter är  
en spelparameter och nämnda åtgärdsprogram är en träningsmodell för förbättring  
25 av utövarens spelaregenskaper inom nämnda sport.
43. Förfarandet enligt krav 42, vidare innefattande steget att registrera spelardata  
(204) för sportutövaren; och varvid den nämnda normalprofilen är baserad på  
motsvarande spelardata, exempelvis åldersgrupp, kön, handicap eller ranking.  
30
44. Förfarandet enligt krav 42, vidare innefattande steget att presentera (210,216)  
karaktäristikprofilen eller jämförelseprofilen visuellt i form av ett stapeldiagram  
med en stapel för varje spelparameter där stapelhöjden motsvarar karaktäristikmått-  
värdet.  
35
45. Förfarandet enligt krav 42, vidare innefattande steget att presentera (210,216)  
karaktäristikprofilen eller jämförelseprofilen visuellt i form av kurvdiagram där  
kurvhöjden för varje spelparameter motsvarar karaktäristikmåttvärdet.

46. Förfarandet enligt krav 42, vilket är anpassat för analys av en golfspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåttet är antal slag i genomsnitt per runda.
- 5 47. Förfarandet enligt krav 42, vilket är anpassat för analys av en tennisspelares spelegenskaper, varvid spelparametrarna är olika slagtyper och karaktäristikmåttet är procentuell fördelning av lyckade slag i förhållande till misslyckade.

## SAMMANDRAG

Ett system, en datorprogramprodukt och ett förfarande för registrering och analys av data, samt generering av åtgärdsprogram i beroende nämnda data. Företrädesvis är

5 systemet och förfarandet anpassat för analysering av en sportutövares (1500) spelaregenskaper samt generering av ett åtgärdsprogram i form av en träningsmodell för spelaren, varvid spelaren under utövande (1501) av sporten registrerar (1502) spelardata (101) och resultatdata (102) i ett registreringsdon (104). I en parameterbearbetningsenhet (106) genereras (1503) i beroende av nämnda registrerade data

10 en spelkaraktäristikprofil med avseende på olika spelparametrar, såsom t.ex. slagtyp, antal slag per slagtyp etc., och en jämförelseprofil medelst vilken en aktuell spelkaraktäristikprofil för en spelare jämförs med en normalprofil för en genomsnittlig spelare. I beroende av jämförelseprofilen selekteras och presenteras (1504) automatiskt ett åtgärdsprogram i form av en träningsmodell som syftar till att

15 eliminera avvikelser från normalprofilen genom att föreslå lämplig träning (1505). (Fig. 15)



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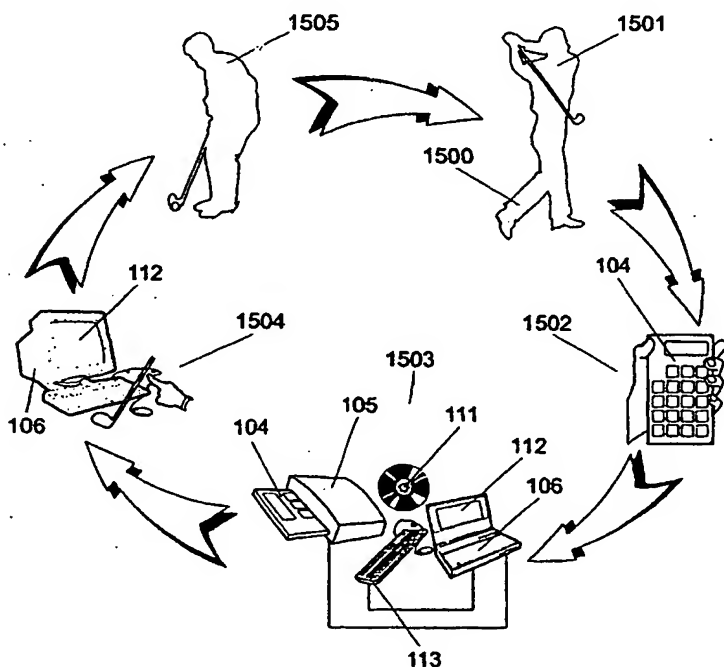
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(54) Title: **SYSTEM, COMPUTER PROGRAM PRODUCT AND METHOD FOR RECORDING AND ANALYSING PERFORMANCE DATA**



(57) Abstract: A system, a computer program product and a method for registration and analysis of data from a practised stage, and for generation of action programs in dependence of said data. Preferably, the system and the method are adapted for the analysis of the player properties of a sports practiser (1500) and for the generation of an action program in the form of a training model for the player, whereby the player will, while practising (1501) the sport, register (1502) player data (101) and result data (102) in a registration unit (104). In a parameter processing unit (106), a player characteristics profile, depending of said registered data, is generated (1503), regarding various parameters, such as shot type, number of shots per shot type, etc., as well as a comparison profile by means of which a current player characteristics profile for a player is compared with a normal profile for an average player. In dependence of the comparison profile, an action program is automatically selected and presented (1504), aiming at eliminating the deviations from the normal profile by suggesting appropriate training (1505).

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

System, computer program product and method for recording and  
Analysing performance data

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## TECHNICAL FIELD

5 The present invention relates to a system and a method for automatically performing an analysis of registered data, and, also automatically, generating an action program, in dependence of the registered and analysed data. For example it is directed towards registration and analysis of sports practisers' game results and player properties, and generation of action programs, comprising training models, in  
10 dependence of said analysis and of game statistics regarding various game parameters. The invention is equally applicable to e.g. administrative routines for collection and processing of data, for the purpose of generating appropriate action.

## STATE OF THE ART

15 Within many areas there exists a requirement for processing collected data, and for comparing it with existing statistics, with the aim of allowing a reasonable assessment of the collected data. For example in administrative or economical routines for enterprises, organisations, hospitals or authorities, registration of data from various parties is very frequent, e.g. business results, sales, staff turnover or similar.  
20 Concerned parties might be countries, enterprises, branch offices, departments, persons, etc. The registered data are often difficult to evaluate alone, and some characteristics or trends may be difficult or impossible to discern without a comparison with an equivalent group or reference. This type of administrative work is often both complicated and time-consuming, even if its results may be very useful for evaluation  
25 or for application of action programs for the purpose of improving various parameters.

Another area within which a corresponding problem exists is sports. There is, within most sports, a need for registration of results in the form of number of points, e.g. in tennis, or number of shots per course section or hole, e.g. in golf. This type of  
30 result registration is generally aimed at determining the winner of a competition stage. Another requirement for result registration is more directed towards analysing, based upon registered statistics, the playing properties of a player or a team, either for comparing with the properties of opponents or for supporting target-oriented training.

35 For different sports, there is today a multitude of different registration means available, ranging from paper forms to portable or stationary computer units. For golf e.g., there are portable electronic registration units for storage of the number of shots per hole, number of putts, type of club or shot length with each club. In some cases there are possibilities of transferring registered result data from a simpler

registration unit to a more sophisticated computer, e.g. a personal computer, in order to facilitate collection and printing of statistics.

The patent publication US 5,683,303, to Lambourne, discloses an electronic result registration apparatus for golf, wherein player data, such as name or initials and handicap, and result data, such as each player's number of shots per hole, putts per hole and won or lost holes per match, can be registered.

Also, the patent publication US 5,795,237, to Miyamoto, discloses an electronic apparatus for entering golf course data and result data by means of a pen and a keyboard, and for presentation of golf results. This patent document, as well as the preceding one, is mainly aimed at registration of result data.

Another piece of known art, more particularly the patent document US 5,558,333, to Kelson et al, discloses a system that is more focused on game improvement, based upon result data from real games. The system uses a microcomputer for displaying a graphical representation of a golf course, in order to register shot locations. Shot length and number of shots are registered, together with other game data, for subsequent analysis regarding possible improvements. What is presented as an analysis, however, only comprises a processing of the player's input data, e.g. a calculation and presentation of mean values. Furthermore, this system is rather complex, and time consuming for the user.

In "Golfing and your Palm Organizer" by Cox in Palm Power Magazine, December 1998, [www.palmpower.com/issuesprint/issue199812/golf.html](http://www.palmpower.com/issuesprint/issue199812/golf.html), a computer program is shown, which can be used together with a palm computer or a PC. With this computer program, player data and result data can be entered during a golf round, and statistics can be calculated and displayed.

In US 5,810,680, to Lobb et al, a portable golf registration apparatus is disclosed, comprising a GPS receiver and a geographical information system. This apparatus also has the capacity of calculating statistics in dependence of result data.

In US 5,882,269, to Lewis, a portable sports training aid means is disclosed, e.g. in the form of a PDA with associated software. On the aid means, a golfer may indicate result data, shot for shot. Statistics can be calculated and training tips can be issued in dependence of the player's result.

## OBJECT OF THE INVENTION

The invention is aimed at solving the problem of providing a system for efficient characterisation of the properties of a practiser of a certain stage. One aspect of the problem is to provide, based upon the property characteristics, a basis for improving the practiser's properties. Another aspect of the problem is to provide a basis for a sports practiser to obtain a clear and reliable presentation of his/her own characteristics.

## SUMMARY OF THE INVENTION

According to an overall aspect, the invention relates to a system for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis. The stage could for example be a quality revision, an economic calculation, or a game round of some sport. The system comprises an input device, in the form of a registering unit, for entering result data. The result data will of course vary depending on the embodiment, but will comprise values of one or more predetermined parameters from one or several performed stages. A calculating device is connected to the input device and arranged to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data. These could e.g. be measurement values of statistical entities, such as mean values, median values, extreme values, etc., for said parameters. A profile generation device, connected to said calculation device, is devised to generate a characteristics profile by compiling said calculated characteristics measurement values, and the system further comprises a reference database with a pre-stored normal characteristics profile. Said characteristics profile is a profile for practisers of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties, e.g. an average, a median value or an extreme value. A comparison device, connected to the profile generation device and the reference database, is arranged to generate a comparison profile by comparing said characteristics profile with said pre-stored normal characteristics profile. The system further comprises a selection device, connected to the profile generation device, functioning to select, in dependence of said characteristics profile or comparison profile, a pre-stored action program.

According to a preferred embodiment, the invention emanates from the inventors' realisation that such game statistics that is normally kept during a game round when practising some sport, e.g. the number of shots of various types in golf or tennis, could be used for creating a characterising profile of the properties of the player. This is based upon the knowledge that the result of a game round is not coincidental, but of course dependent on the skills and shortcomings of the player. The reliability of the profile will increase through using game statistics from a number of game rounds and calculating average values for various selected parameters.

In its most general form, the invention includes a system and a method comprising registration of result data in the form of values for one or several predetermined game parameters from one or several game rounds played. In the example of golf, the game parameters are typically different shot types, such as drives, transport shots, approach shots, putts, chip shots, bunker shots or penalty shots, and the

parameter value is typically the number of shots per shot type. The registration may be made by means of electronic or mechanical means, or even with paper and pencil. For a number of selected game parameters, a characteristics measurement value is calculated for a predetermined characteristics measurement, e.g. the average number of shots per round, in total and per shot type. Subsequently, a characteristics profile for the player properties of the sports practiser is generated by compiling said calculated characteristics measurement values. This profile will thus provide a characteristic description of the playing performance of a player. For a human observer, the profile is preferably visualised graphically, e.g. in the form of a bar diagram or a curve, for example clearly presenting the average number of shots per round and the shot types. The profiles are adapted to the subject player regarding for example age, sex, playing performance, handicap, ranking or other player property.

In a further step, a comparison profile is generated for the sports practiser, by comparing said characteristics profile with a pre-stored normal profile for a normal player, having corresponding or better player data within the same age and sex group. This comparison profile will subsequently be the basis of a further step, wherein automatic selection and recommendation is performed of one or several pre-stored training models or action programs, intended to eliminate deviations in player properties, preferably player performance, from the comparison profile.

The selected parameters will of course be different for different sports, and such parameters should be selected that are appropriate for defining player quality from some aspect. For tennis e.g., the relative number of shots per shot type, the number of shots missed per shot type, ball touch-downs and ball hits, might be adequate parameters.

Various embodiments of the invention comprise a computer program product for controlling a computer to perform various portions of the method, and a system including hardware in combination with computer software.

Other characteristics and embodiments of the invention can be evident from the detailed description and the appended claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be explained in further detail, with reference to the enclosed drawings, of which:

- Fig. 1 shows an overall block diagram of an embodiment of the system according to the invention;
- Fig. 2 shows a flow chart of the steps according to an embodiment of the invention;
- Fig. 3 shows an overall block diagram of devices comprised in embodiments of the invention;

- Figs. 4-7 show examples of characteristics profiles for golf players, in the form of bar diagrams;
- Fig. 8 shows an example of a comparison profile, more precisely a difference profile, for a golf player;
- Fig. 9 shows an example of a characteristics profile for a golf player in the form of a curve chart;
- Figs. 10-12 show examples of characteristics profiles and comparison profiles for tennis players;
- Fig. 13 shows an example of a presentation of input and processed directional data and distance data for a golf player;
- Fig. 14 shows an example of a comparison profile, wherein a characteristics profile for a golf player as well as a reference profile for a normal player are provided as separate curves in a curve chart; and
- Fig. 15 shows a schematic illustration of one embodiment of the method according to the invention, for the example of golf.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention is, as was stated before, applicable to a multitude of different areas. In order to describe the invention as clearly as possible, substantially only sports embodiments will be discussed below, preferably the example of golf. This should not, however, be interpreted as if other embodiments were excluded from the scope of the invention. The described embodiments should rather be regarded solely as examples, and in order to call the reader's attention to one of the numerous other conceivable embodiments, a description of one embodiment of the invention within the area of revision in the health care sector is given further down in this description.

Fig. 1 shows an embodiment of the system according to the invention, comprising an electronic registration unit 104 for entering player data 101 and result data 102. As can be gathered from the figure, said data are entered via a keyboard 107 with keys 114 allowing input of various types of information. In its simplest form, the registration unit will only store stated data in various categories and the registering unit would be paper and pencil. The registration unit 104 further comprises a simple display 115, for presentation of input and processed data to the user. The system further includes a parameter processing unit 106 that, in various embodiments, can be partly or fully integrated in the electronic registration unit. In any occasion the parameter processing unit includes an input device 105 for receipt of result data and possibly player data. This could for example be performed by connecting a data output 103 of the registration unit to the input device 105. The parameter processing unit further includes data processing means in the form of a

processing unit (CPU) 108 and a memory 109, and comprises, or is connected to, a database 110 containing pre-stored normal profiles. A presentation unit 112, in the form of a display or a printer, is also connected to the parameter processing unit, as is preferably a control and data input device 113 in the form of a keyboard, a mouse, or similar. In a preferred embodiment, the invention is realised in the form of a computer program product comprising a computer program, stored on a data storage medium 111 and functioning to control a data processing system, e.g. a personal computer, to perform the steps according to the invention. The parameter processing unit is then normally realised by means of a known PC and arranged according to the invention by means of the computer program product.

Fig. 2 shows an overall flow chart of the method according to the invention. After Start 202, the following step numbers comprise:

-204, registering result data, in the form of values for one or more predetermined game parameters, from one or several completed game rounds;

-206, calculating, for every stated game parameter, a characteristics measurement value for a predetermined characteristics measurement;

-208, generating a characteristics profile for the player properties of the sports practiser through compiling said calculated characteristics measurement values;

-210, presenting, if requested, a graphic representation of the generated characteristics profile;

-212, retrieving, from a database, a normal profile;

-214, generating a comparison profile for the sports practiser by comparing said characteristics profile with a normal profile for a normal player, which normal profile is pre-stored in said database. In one embodiment, this step comprises the

measure of applying a predetermined mathematical operation to the characteristics profile and the normal profile. The comparison profile can be realised in the form of a difference profile, generated by calculating the difference between the

characteristics measurement values for each game parameter of the characteristics profile and the normal profile. In another embodiment, a comparison profile for the

sports practiser is generated by compiling, for each game parameter, a current characteristics measurement value for the sports practiser, a stored best characteristics measurement value for the sports practiser, and a normal characteristics measurement value for a normal player;

-216, presenting, if requested, a graphic representation of the generated comparison profile;

-220, selecting, in dependence of said characteristics profile or comparison profile, one or several pre-stored action programs, retrieved or fetched in step 218 from a database of pre-stored action programs, preferably in the form of training models;

-222, presenting the selected action program to the user;



224, stopping and, if requested, repeating selected ones of the previous steps.

In one embodiment, player data for the sports practiser are registered, whereby said normal profile is based upon corresponding player data, for example, age group, sex, handicap or ranking. As mentioned above, the characteristics profile or comparison profile may be presented visually in the form of a bar diagram having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value, or in the form of a corresponding curve chart.

In the embodiment from which the exemplifying profiles in Figs. 4-9 are collected, the invention is adapted for the analysis of a golfer's playing properties, the game parameters being various shot types and the characteristics measurement being the number of shots on average, per round. In another embodiment, from which the exemplifying profiles in Figs. 10-12 are collected, the invention is adapted for the analysis of a tennis player's playing properties, the game parameters being various shot types and the characteristics measurement being the percentage distribution of successful shots in relation to unsuccessful ones.

Fig. 3 shows a block diagram for an apparatus or a computer program product according to the invention. In the apparatus embodiment, the devices will normally be realised by means of hardware components, possibly in combination with associated software. In the computer program product, the corresponding means will normally be realised through program instruction sequences stored on a storage medium and arranged for controlling a computer processing system into performing the actions according to the invention. The lines between the blocks of the block diagram indicate signal connections or communicative connections for signal or data communication between the devices.

The embodiment according to Fig. 3 comprises input device 302, for input and/or receipt of result data and player data, and a device 303 in the form of a data structure for storing said data in a memory. Further, a calculating device 304, for calculation of characteristics measurement values, and a device 306 in the form of a data structure for storing said characteristics measurement values in a memory, are included. The computing device 304 is devised to operate in dependence of said result data and/or player data from the input device 302 or the memory device 303. A device 308 for generation of a characteristics profile is devised to operate in dependence of the characteristics measurement values from the calculating device 304 or the memory device 306, and is in turn devised to store generated characteristics profiles into a device 310, in the form of a data structure for storing such characteristics profiles in a memory. Data structures for normal profiles, also called reference profiles, are pre-stored in a reference database 311. Further, a device 312, for generation of a comparison profile, receives a characteristics profile as input data from the memory 310 and a normal profile as input data from the reference

database 311, and can in turn store a comparison profile into a memory device, e.g. 310. In dependence of the comparison profile, a device 314 then functions to select an action program among pre-stored action programs in an action database 316, preferably a training model database. Further to this, a device 318 for presentation of characteristics profiles and comparison profiles, and a device 320 for presentation of action programs, are included. The functionally described devices are, in various embodiments, adapted to the different functions described in other sections of this description of the invention.

Examples of graphic presentations, in the form of diagrams of characteristics profiles for a golf player, are shown in Figs. 4-9 and 14, wherein the horizontal axis 402, 502, 602, 702, 802, 902, 1402, denotes game parameters such as shot type, and the vertical axis 404, 504, 604, 704, 804, 904, 1404, denotes the number of shots for a round, or preferably on average per round, on a certain golf course. The game parameters in these examples are the following different shot types:

- Drive, 406, 506, 606, 706, 806, 906, 1406, consisting of a first shot, not intended to reach the golf green with its golf hole;
- Transport, 408, 508, 608, 708, 808, 908, 1408, is the denomination for a shot type that is a continuation of an earlier shot and that is not intended to reach the green;
- Approach, 409, 509, 609, 709, 809, 909, 1409, is a shot type with the intention of reaching the green, and which is not played from a bunker;
- Putt, 410, 510, 610, 710, 810, 910, 1410, is a shot type used for the final shots, closest to the hole, generally on the green;
- Bunker, 412, 512, 612, 712, 812, 912, 1412, is a shot type being shot from a gravel or sand obstacle on the course;
- Penalty, 414, 514, 614, 714, 814, 914, 1414, is not a physical shot, but denotes how many extra penalty shots you have received due to your game on the course according to the present game rules.

Figs. 4 and 5 illustrate the current profile for an analysed player. In Fig. 5, the types of shot are also stated; the number of chip shots 516, i.e. a short shot with an iron club from a location close to the green, pitches 518, meaning a short, high shot with a highly angled club, and further two software-created shot types. The first of the latter two shows the number of shots caused by 3 or more putts on the same golf hole. The last shot type shows the number of successful bunker shots, on average, per round. A successful bunker shot may for example be defined by maximum one putt having been needed after the bunker shot.

Fig. 6 again shows the current profile for an analysed player, and Fig. 7 shows a normal profile in the form of the profile for an average player, of the same sex and handicap level. From the reference database 311, several different normal profiles can of course be retrieved, compare step 212. Sex, age, handicap level, etc. may be

selected, allowing a player to compare his own profile, i.e. playing characteristics, with a normal profile for a somewhat lower handicap. This will give the player an indication about what he/she ought to improve in order to reach a lower handicap, that is, become a better player.

5 Fig. 8 shows a comparison profile, in the form of a difference profile, as a bar diagram where the average number of shots per round from the profile of Fig. 6 has been reduced by the corresponding characteristics measurement values from the normal profile of Fig. 7. The illustrated difference profile of Fig. 8 shows the highest value for the transport shot type, and the next highest one for the approach shot type,  
10 allowing the conclusion that it would be appropriate to select one or more action programs, i.e. training models, where these shot types are exercised.

Fig. 9 shows the same diagram as Fig. 6, but in the form of a curve. Another way of presenting a comparison profile, in accordance with Fig. 14, is to show the characteristics of the current player as well as that of the normal player, accessed  
15 from the reference database 311. Preferably, the bars, or the curves, as illustrated in the figure, are shown with different line types or colours, so as to make them easy to separate. The characteristics profile for the various cases may of course be represented in various diagram forms, depending on which will give the most suitable visualisation.

20 The graphical presentation, according to the present invention, of the player characteristics together with, or weighted against, a normal profile, allows a very clear and simple picture of which parts of the game are in need of improvement. The normal profile, or the reference profile, takes into consideration the number of holes with par 3, par 4 and par 5 on the present course that have been played, when calculating the player profile, thus ensuring the relevance of the given normal profile at all  
25 times.

The foregoing, i.e. input and calculation of player data, score, shot types, etc., and mathematical comparison between player profile and normal profile, could be called the analysis part of the system, and provides a most useful tool for the player  
30 in the ambition to improve his or her game. According to the invention, the system further comprises a training part, wherein input and analysed data are used for actively proposing an action program, e.g. in the form of training models for the player.

In a preferred embodiment of the invention, the practiser/player, or anyone  
35 else, for that matter, may proceed from the analysis part of the system to the training part in the parameter processing unit 106, by for example depressing a key on a keyboard 113, by a menu selection or by activating an icon on the presentation unit 112.

In the training part, advice is given on recommended training, depending on the player and reference profiles, i.e. the comparison profile. In a preferred embodiment of the invention, one or more exercise suggestions are provided, for a predetermined maximum number, e.g. 5, of shot types, said exercise suggestions being accessible by depressing a key, a menu selection or an icon activation. The exercises stored in the training database 316 are composed by golf pros, warranting a high and reliable quality. One or more training models with instructions and figures may thus be provided for a given comparison profile, and these training models may also be combined to provide a more complete training within an area where insufficiencies have been detected.

The parameters, in dependence of which exercises are suggested by the training part of the system, are e.g. sex, HCP (handicap) and area, i.e. course, range, etc. Preferably all, or the major portion of, this information will be retrieved from the analysis part of the system, but this information could also be entered directly to the training part via a keyboard 113 or similar.

For every suggested exercise, a written instruction is shown on the presentation unit 112, or on a printout if requested, and preferably one or more figures in order to make the instruction as clear as possible. Besides this, every suggested exercise is accompanied by a comment about the player types, areas, HCP levels etc., which the exercise is suitable for.

In one embodiment of the invention, the analysis part of the system, and/or its training part, are accessible from an Internet portal, belonging to a service provider. Access to the portal may for example be controlled by subscription, in combination with a user name and a password, in the known manner. In a preferred embodiment, the players can also e-mail their registered game results, together with current player data, to the service provider administrating the Internet portal and the reference database 311. The service provider may then store the player data in the reference database 311, accessible via the portal, thereby increasing the statistical accuracy and the multitude of player types of the reference database.

In one embodiment of the present invention, the registration unit 104 may also be used for registration of the length and direction of golf shots. In a preferred embodiment, this is possible by means of the numerical keys 114 indicating the digits 1 - 9 on the keyboard 107, as shown in Fig. 1. The digit 5 is used for indicating a correct shot, i.e. a shot or a putt landing where intended, within some tolerance that may be subjective. The digit 8 will mean a straight but too long shot, while the digit 2 will mean a straight but too short shot. Similarly, the digits 4 and 6 will indicate shots of correct length, but 4 will indicate a leftward deviation and 6 will indicate a rightward deviation. Consequently, the digits 1, 3, 7 and 9 will indicate shots that are too short or too long, as well as having a leftward or rightward deviation,

respectively. Preferably, the input of directional information on the registration unit 104 will be preceded by the depression of a key for that purpose on the keyboard 107, preparing the registration unit for the input of directional data.

Fig. 13 illustrates an example, according to one embodiment of the invention, of how input and processed length and direction data could be presented in the system. Assessment of the direction and length can be performed for all types of shots, and will preferably be presented for one shot type at a time. In Fig. 13, each sector represents an input with the above-mentioned keys 1 - 9. The outer ring 1301 represents 100 % of the shots within the sector in question, whereas the dashed line 1302 represents 50 %. In the inner circle 1303 is indicated, preferably by percentage figures, how large a portion of the illustrated shot type that was correct. From the figure it can be gathered that the player considered 25 % of his shots, of the shot type in question, to be correct. It should be noted that this might be the case for putts, even if one has not made just one putt to reach the hole. A putt stopping e.g. within half a metre from the hole could be considered as correct, if it was shot from maybe 5 metres or more. Furthermore, it may be gathered from Fig. 13 that the player has shot 50 % of the shots straight but too short, indicated by the sector 1304 being filled up to the dashed line 1302. The remaining 25 % of the shots have been too long and deviating towards the left, indicated by the sector 1305 being filled halfway to the line 1302. When selecting, from this analysis part presentation, to enter into the training part, the system will automatically give exercise suggestions for trying to overcome the registered problems. It will be understood that the presentation of direction data could also be performed by normal display of figures and text en clair.

Fig. 15 shows, schematically, the procedure for a preferred embodiment of the invention. A player 1500 plays, in step 1501, one or more golf rounds, whilst simultaneously registering his score in the registration unit 104, in step 1502. Into the unit 104, the player has also entered player data, such as sex, and number of extra shots given to him/her on the current course. The player 1500 will register the shot type for each shot and, in one embodiment, also if the player is satisfied or unsatisfied with the shot. The direction may also be registered, in the manner discussed above.

After finishing one round, or several rounds, the registered result data, together with the player data, are transferred to a computer 106, e.g. a PC, via an input device 105, or alternatively, the registered result data, together with the player data, are transferred directly to the Internet portal of the service provider via the input device 105. As mentioned above, the parameter processing unit may be functionally divided between the registering unit 104 and the computer 106. Thus, certain processing can be performed already in the registration unit 104, e.g. calculation of net score, allowing the registering unit to be used also as a traditional score card.

A keyboard and/or a mouse 113 are preferably connected to the computer 106. The data input device 105 is, in a preferred embodiment, an electronic pocket with a reader, in which pocket the registration unit 104 is placed, whereupon the information stored in the registration unit 104 is read, automatically or user-initiated, and stored in the computer 106. The reading may of course, in alternative embodiments, take place by wireless transmission, using IR, Bluetooth or similar.

On a storage medium 111, e.g. a CD-ROM or a server adapted for generating a portal, software is stored for actuating said computer 106 into performing the method according to the invention within the analysis and training parts of the system. The database 311 with reference profiles, and the database 316 with training models, may also be stored on said storage medium 111, or may be accessible via a computer network, e.g. the Internet, from another storage location.

In the computer 106, the previously described analysis part can be performed and presented to the player on the display 112 or as a print-out. By means of the keyboard/mouse 113, the player may subsequently select to enter the training part 1504, whereby relevant exercises will be presented on the display 112. By studying the instructions and the figures being presented for each exercise step in the training part, the player may perform appropriate training in step 1505, whereupon he/she can come better prepared for the next round, or number of rounds, 1501. The system according to the present invention thus provides sports practisers with a heretofore not presented procedure for analysis and a training aid, in order to improve their game.

The Figs. 10 - 12 show examples of characteristics profiles generated by an embodiment of the invention adapted for tennis. Fig. 10 shows how various shot types, such as forehand 1006, backhand 1008, first service 1010 and second service 1012, respectively, defined on the horizontal axis, are distributed percentage-wise with regard to successful shots in relation to unsuccessful shots for a current period. In the profile, a current result (bar marked 1) is compared with e.g. the player's own best score (bar marked 2) and that of an average player (bar marked 3) of for example the same sex, age group or ranking level.

In Fig. 11, the forehand shot of the player in question is characterised in the same manner, during the current match or period, concerning the percentage of winning shots (bar marked 1), missed shots (bar marked 2) and shots into the court (bar marked 3). In the diagram, these are also compared with those of an average player of the same sex, and possibly age group and e.g. ranking level, and in Fig. 12 the attack game of a tennis player is characterised in the same manner. The attack shot types illustrated are; after bouncing in the court, first volley, second volley and smash.

In an example of an embodiment not concerning sports, the invention could be applied to the stage of auditing journal writing within the health care sector. A person performing the audit, in this description called a quality auditor, will follow a nurse in his/her work regarding handling of patient's journals. The quality auditor carries a registration unit, preferably an electronic box, on which the auditor enters result data for given parameters, e.g. in the form of values entered by the numerical keyboard of the box, or in the form of Yes and No as answers to predetermined check points, which could be stated as questions on the inside of the casing of the box. Examples of questions might be:

- 10 - Are the points in time stated in the journal readable?
- Is the identity of the patient checked?
- Does the nurse sign the journal?

After finishing the audit, the registered data are transferred to a PC, where a summary and statistics computation, in dependence of the result data, are performed by a profile generation device, whereupon the statistics is presented in the form of figures or diagrams. A comparison device in the PC then functions to compare the calculated statistics with a normal profile given in advance, e.g. an average taken from several different hospitals, or an average or a tendency curve for the current hospital based on previous journal audits.

20 The result of the analysis, i.e. the comparison with the normal profile, is subsequently used by a program in the computer, for selecting, among a multitude of pre-stored action programs for journal audits, an action program adapted for overcoming shortcomings detected by the performed comparison.

In a preferred embodiment within the area of journal audits, all audit results are stored on an Internet portal, where authorisation for access to the results is granted by certain responsible persons. For example, a national unit may have access to all the audits, whereas a department will only have access to their own audit results. A hospital manager has access to all the audits made in his hospital. In an alternative embodiment, the audit results can be stored in the hospital's central computer, and be transferred to other hospitals, authorities, etc., from there.

30 In one embodiment of the invention, which might be applied to both sports, administrative routines, education, etc., the action program comprises a test that is adapted to the detected shortcomings from the analysis part, e.g. a test of the kind where questions are to be answered verbally or in writing, or with multiple choice alternatives. The test is preferably executed on the practiser's computer 106 and is shown in the display 112 or played through a loudspeaker. The test may also be executed in a server arranged in a communication system, e.g. the Internet, to which the computer 106 may be connected. The test is then preferably accessible from the computer 106 via an Internet portal. Preferably, the computer/server software

corrects the test, and the result is presented to the player on the display 112. The test result may also be presented as a player profile, which is weighted or presented together with a normal profile. The normal profile may represent a statistical entity within a given group, e.g. a school class, and may be an average, a minimum value or similar. In one embodiment of the invention, the step to be practised is represented by a theoretical test within a given subject. For each question or subject area, which are parameters, the practiser's reply is registered as result data in an input device 104, 105, 302. A calculation device 106, 304 is coupled to the input device and functioning to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data. Such characteristics measurements could be the number of correct answers within a subject area, the percentage of completely correctly answered questions within the test, or similar. A profile generation device 106, 308, connected to said calculation device functions to generate a characteristics profile by compiling said calculated characteristics measurement values. A comparison device 312, connected to the profile generation device, is functioning to generate a comparison profile through comparing said characteristics profile with a pre-stored normal profile obtained from a reference database 311. The normal profile may be an average from a given group, e.g. a class, or be compiled data for the practiser obtained from previous tests, or similar. Preferably, a selection device 314 is connected to the profile generation device 308 and/or the comparison device 312 and/or a memory storage containing a profile data structure 310, and is devised to, in dependence of said characteristics profile or comparison profile, select a pre-stored action program for the practiser. The action program preferably consists of a series of exercises adapted to overcome the shortcomings detected by said comparison, and these exercises may be practical as well as theoretical.

It is to be understood that the described areas for the exemplifying embodiments, and for the different sports, are merely examples, and that a similar type of game parameters could be defined for other areas and other sports, such as darts, billiards and many others, and characteristics profiles be created, by application of the invention.



CLAIMS

1. A system for registration and analysis of data from a practised stage, and for  
5 generation of action programs in dependence of the performed analysis,  
characterised by:
- an input device (104, 105, 302), for entering result data for one or more predeter-  
mined parameters from one or several performed stages;
  - a calculating device (106, 304), connected to the input device and devised to  
10 calculate, for each of said parameters, a characteristics measurement value for a pre-  
determined characteristics measurement, in dependence of said result data;
  - a profile generation device (106, 308), connected to said calculation device, and  
devised to generate a characteristics profile by compiling said calculated char-  
acteristics measurement values;
  - 15 - a reference database (311) containing a pre-stored normal characteristics profile;
  - a comparison device (312), connected to the profile generation device and the ref-  
erence database, and devised to generate a comparison profile by comparing said  
characteristics profile with said pre-stored normal characteristics profile.
- 20 2. The system according to claim 1, wherein a device (318) for presentation of  
the comparison profile is devised to present the comparison profile graphically on a  
presentation unit (112).
3. A system according to claims 1 or 2, wherein the comparison device is  
25 devised to generate a comparison profile by applying a predetermined mathematical  
operation to the characteristics profile and the normal profile.
4. The system according to claim 3, wherein the comparison device is devised to  
generate a comparison profile in the form of a difference profile (804), by cal-  
30 culating the difference between characteristics measurement values for each para-  
meter (806, 808, 809, 810, 812, 814) of the characteristics profile and the normal  
profile.
5. The system according to claim 2, wherein said device (318) for presentation  
35 of the comparison profile is devised to visualise, for each parameter (1406, 1408,  
1409, 1410, 1412, 1414), a current characteristics measurement value (1415) and a  
normal characteristics measurement value (1416) in the same diagram.

6. The system according to claim 1, further comprising a selection device (314) connected to the profile generation device (308) and/or the comparison device (312) and/or a memory containing a profile data structure (310), and being devised to select, in dependence of said characteristics profile or comparison profile, a pre-  
5 stored action program.

7. The system according to claim 1, wherein said characteristics profile is a profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.

10

8. The system according to claim 7, wherein said normal characteristics profile is a profile for an average practiser within said group.

9. A system according to claims 7 or 8, wherein said practiser is a sports practiser, said stage being a game round of said sport, said parameter is a game  
15 parameter and said action program is a training model for improvement of the practiser's player properties within said sport.

10. The system according to claim 9, further comprising a device (302) arranged  
20 for entering player data for the sports practiser, and wherein said normal profile is based upon corresponding player data, for example age group, sex, handicap or ranking.

11. The system according to claim 10, wherein said device (318) for presentation  
25 of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a bar diagram (404, 504, 604, 704, 804, 1004, 1104, 1204) having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value.

30

12. The system according to claim 10, wherein said device (318) for presentation of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a curve  
35 chart (904, 1404), where the level of the curve for each game parameter corresponds to the characteristics measurement value.

13. The system according to claim 10, adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.

14. The system according to claim 10, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.
15. The system according to claim 10, further comprising a device (314) for maintaining a computer structure for storing of characteristics measurement values in a memory (110).
16. The system according to claim 10, further comprising a device (310) for maintaining a computer structure for storing of characteristics profiles in a memory (110).
17. A computer program product, for use together with a computer processing system (106), for registration and analysis of data from a practised stage, and for generation of action programs in dependence of the performed analysis, comprising - a computer storage medium (111), characterised by:
- means (302), stored on the storage medium, devised to control the computer processing system to receive the input of result data for one or more predetermined parameters from one or several performed stages;
  - calculating means (114, 304), stored on the storage medium, devised to control the computer processing system to calculate, for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement, in dependence of said result data;
  - profile generation means (114, 308), stored on the storage medium, devised to control the computer processing system to generate a characteristics profile by compiling said calculated characteristics measurement values;
  - comparison means (312), stored on the storage medium, devised to control the computer processing system to generate a comparison profile by comparing said characteristics profile with a normal profile, pre-stored in a reference database (311).
18. The computer program product according to claim 17, wherein means (318), stored on the storage medium, for presentation of the comparison profile, is devised to present the comparison profile graphically on a presentation unit (112) connected to the computer processing system.

19. The computer program product according to claims 17 or 18, wherein the comparison means is devised to control the computer processing system to generate a comparison profile by applying a predetermined mathematical operation to the characteristics profile and the normal profile.

20. The computer program product according to claim 19, wherein the comparison means is devised to generate a comparison profile in the form of a difference profile (804), by calculating the difference between characteristics measurement values for each parameter (806, 808, 809, 810, 812, 814) of the characteristics profile and the normal profile, respectively.

21. The computer program product according to claims 17 or 18, wherein said means (318) for presentation of the comparison profile is devised to visualise, for each parameter (1406, 1408, 1409, 1410, 1412, 1414), a current characteristics measurement value and a normal characteristics measurement value in the same diagram (1404).

22. The computer program product according to claim 17, further comprising selection means (314), stored on the storage medium, devised to control the computer processing system to select, in dependence of said characteristics profile or comparison profile, a pre-stored action program.

23. The computer program product according to claim 17, wherein said characteristics profile is a profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.

24. The computer program product according to claim 23, wherein said normal profile is a profile for an average practiser within said group.

25. The computer program product according to any one of the claims 17 - 24, wherein said practiser is a sports practiser, said stage is one game round of said sport, said parameter is a game parameter and said action program is a training model for improvement of the practiser's player properties within said sport.

26. The computer program product according to claim 25, further comprising means (302), stored on the storage medium, devised to control the computer processing system to receive input player data for the sports practiser; and wherein

said normal profile is based upon corresponding player data, for example age group, sex, handicap or ranking.

27. The computer program product according to claim 25, wherein said means (318) for presentation of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a bar diagram (404, 504, 604, 704, 804, 1004, 1104, 1204) having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value.

28. The computer program product according to claim 23, wherein said means (318) for presentation of the comparison profile further is devised to visually present, on said presentation unit (112), the characteristics profile or the comparison profile in the form of a curve chart (904, 1404), where the level of the curve for each game parameter corresponds to the characteristics measurement value.

29. The computer program product according to claim 25, further being adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.

30. The computer program product according to claim 25, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.

31. The computer program product according to claim 25, further comprising means (314), stored on the storage medium, devised to control the computer processing system to maintain a computer structure for storing of characteristics measurement values in a memory (110).

32. The computer program product according to claim 25, further comprising means (310), stored on the storage medium, devised to control the computer processing system to maintain a computer structure for storing of characteristics profiles in a memory (110).

33. A method for registering and analysing data from a practised stage, and for generating action programs in dependence of the performed analysis, characterised by the steps of:

- registering result data (204) for one or more predetermined parameters from one or several performed stages;
  - calculating (206), for each of said parameters, a characteristics measurement value for a predetermined characteristics measurement;
  - 5 - generating (298) a characteristics profile by compiling said calculated characteristics measurement values;
  - generating a comparison profile (214) by comparing said characteristics profile with a pre-stored normal profile.
- 10 34. The method according to claim 33, further comprising the step of graphically presenting (216) the comparison profile on a presentation unit connected to the computer processing system.
35. The method according to claims 33 or 34, further comprising the step of  
15 generating a comparison profile by applying a predetermined mathematical operation to the characteristics profile and the normal profile.
36. The method according to claim 34, whereby a comparison profile in the form of a difference profile is generated by calculating the difference between character-  
20 istics measurement values for each parameter of the characteristics profile and the normal profile, respectively.
37. The method according to claim 34, further comprising the step of visualising, for each parameter, a current characteristics measurement value and a normal char-  
25 acteristics measurement value in the same diagram.
38. The method according to claim 33, further comprising the step of selecting (220), in dependence of said characteristics profile or comparison profile, a pre-stored action program.
- 30 39. The method according to claim 38, further comprising the step of visually presenting (222) instructions and figures associated with the current action program.
40. The method according to claim 33, whereby said characteristics profile is a  
35 profile for a practiser of said stage, whereas said normal characteristics profile is a profile calculated from a group of practisers with common properties.
41. The method according to claim 34, whereby said normal profile is a profile for an average practiser within said group.

42. The method according to any one of claims 33 - 41, whereby said practiser is a sports practiser, said stage is one game round of said sport, said parameter is a game parameter and said action program is a training model for improvement of the practiser's player properties within said sport.
43. The method according to claim 42, further comprising the step of registering player data (204) for the sports practiser; and whereby said normal profile is based upon corresponding player data, for example age group, sex, handicap or ranking.
44. The method according to claim 42, further comprising the step of visually presenting (210, 216) the characteristics profile or the comparison profile in the form of a bar diagram having one bar for each game parameter, where the bar height corresponds to the characteristics measurement value.
45. The method according to claim 42, further comprising the step of visually presenting (210, 216) the characteristics profile or the comparison profile in the form of a curve chart (904, 1404), where the level of the curve for each game parameter corresponds to the characteristics measurement value.
46. The method according to claim 42, adapted for the analysis of the player properties of a golfer, whereby the game parameters are various shot types and the characteristics measurement is the average number of shots per round.
47. The method according to claim 42, adapted for the analysis of the player properties of a tennis player, whereby the game parameters are various shot types and the characteristics measurement is the percentage distribution of successful shots in relation to unsuccessful ones.

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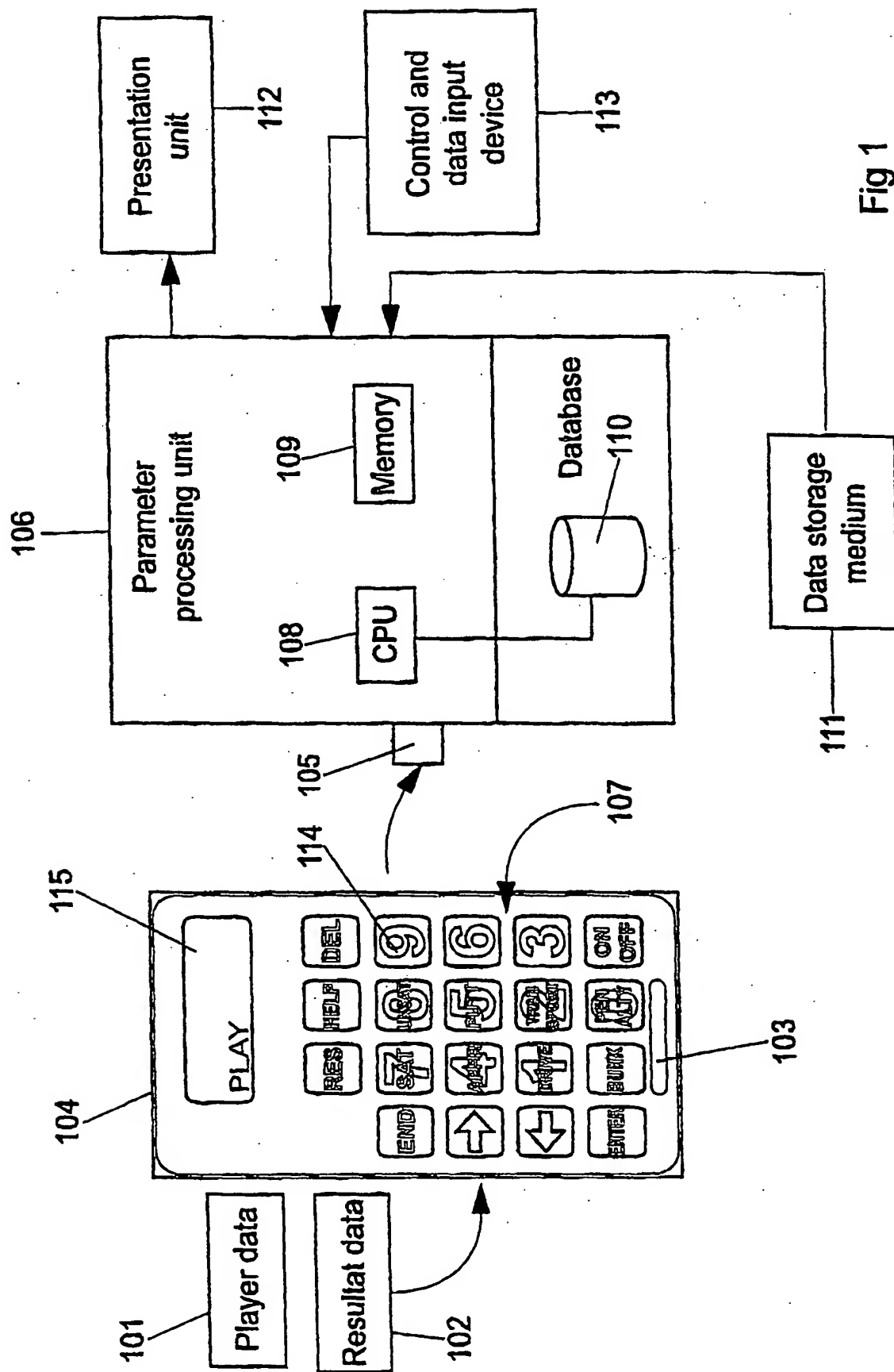


Fig 1



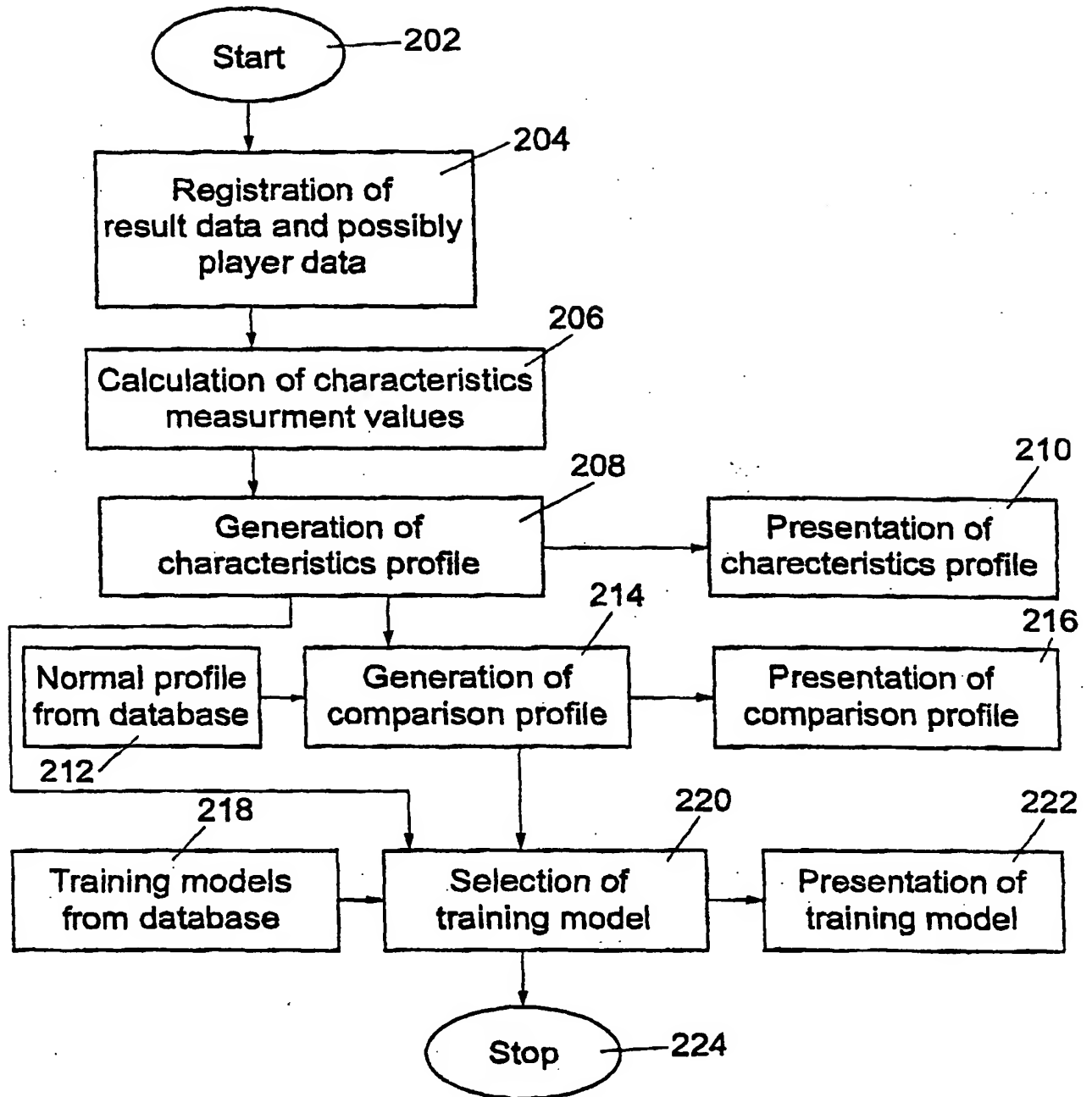


Fig 2

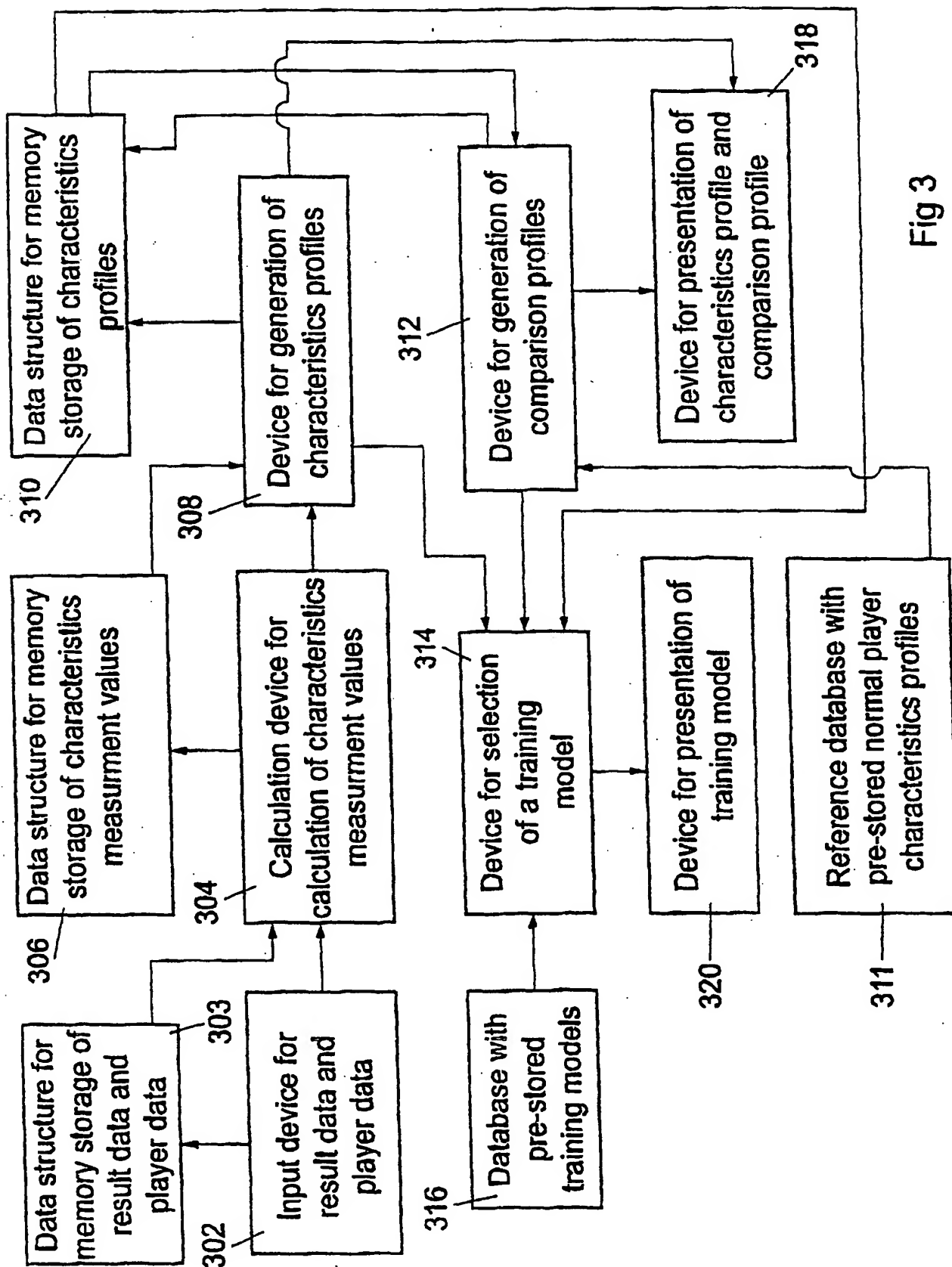


Fig 3

4/9

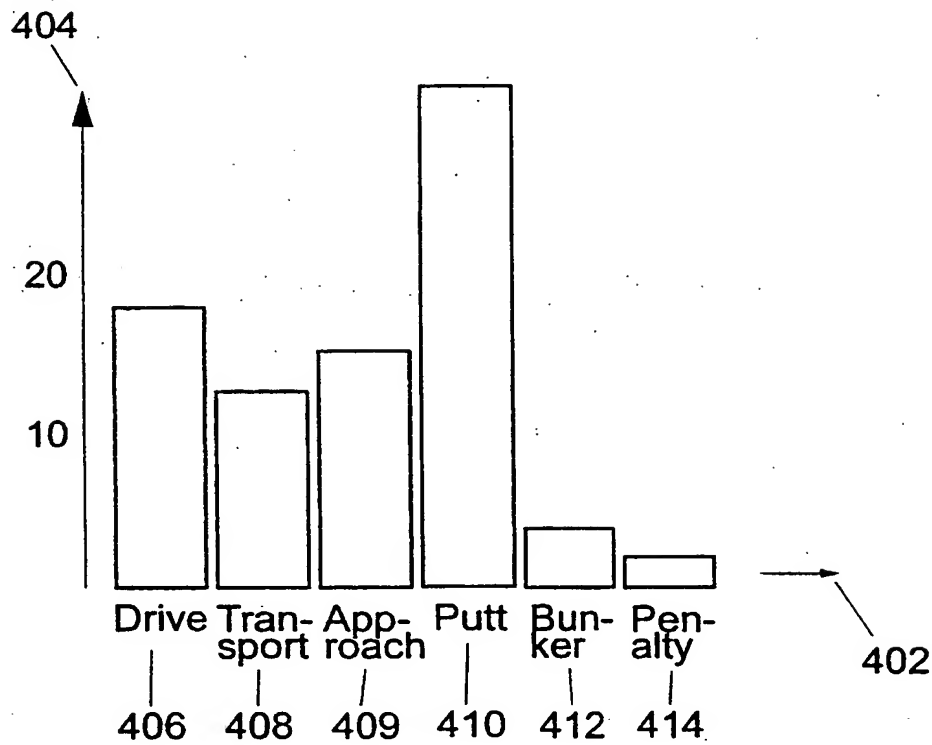


Fig 4

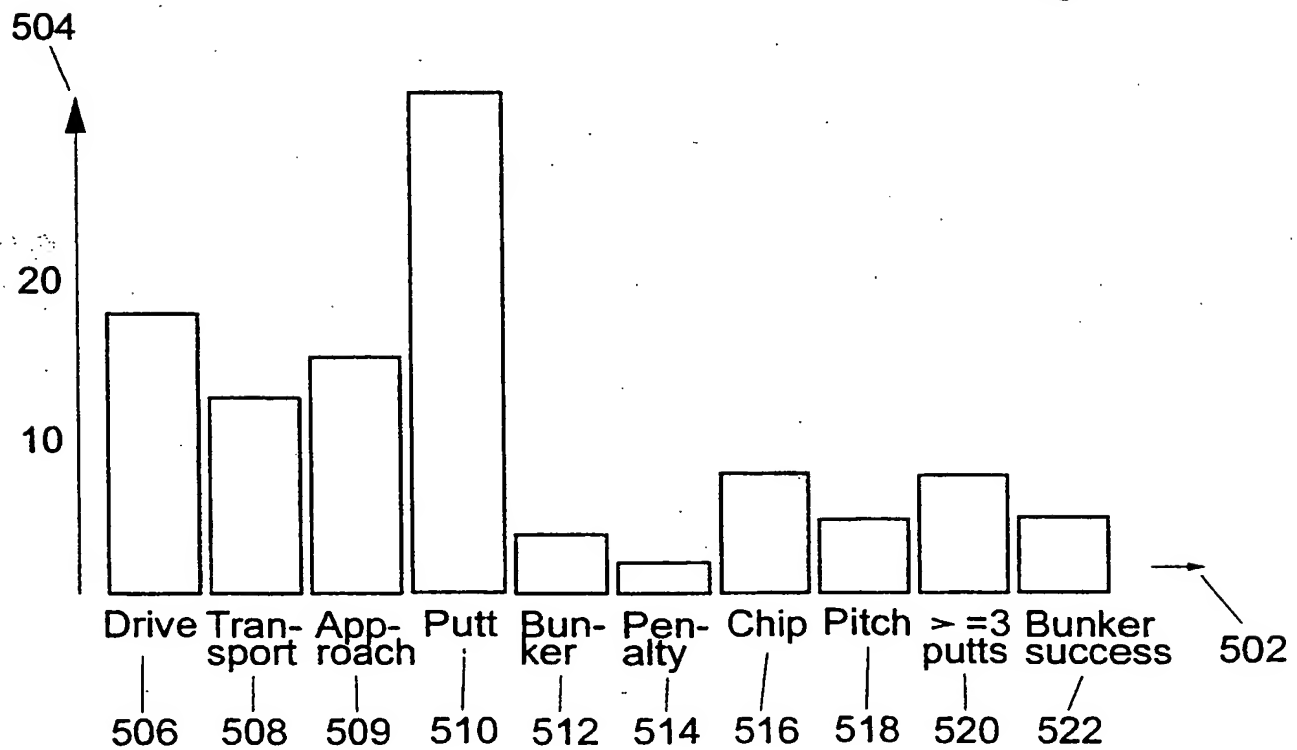
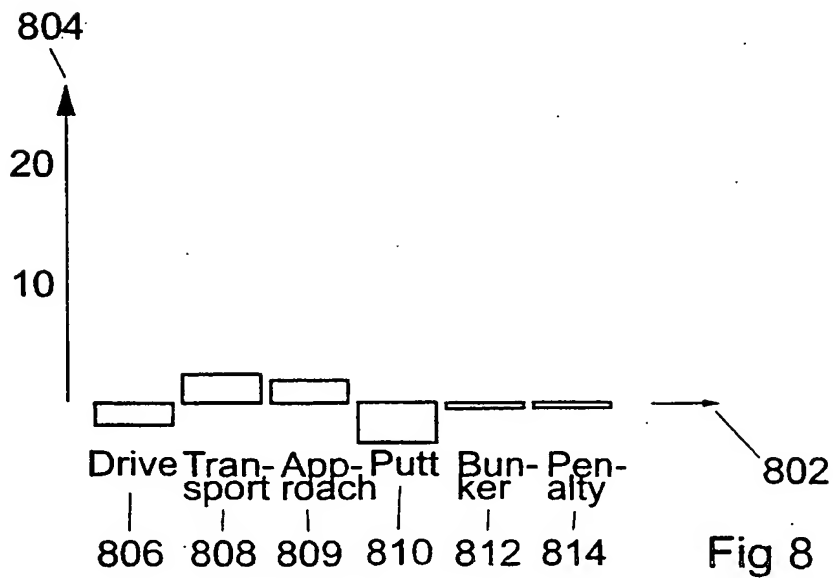
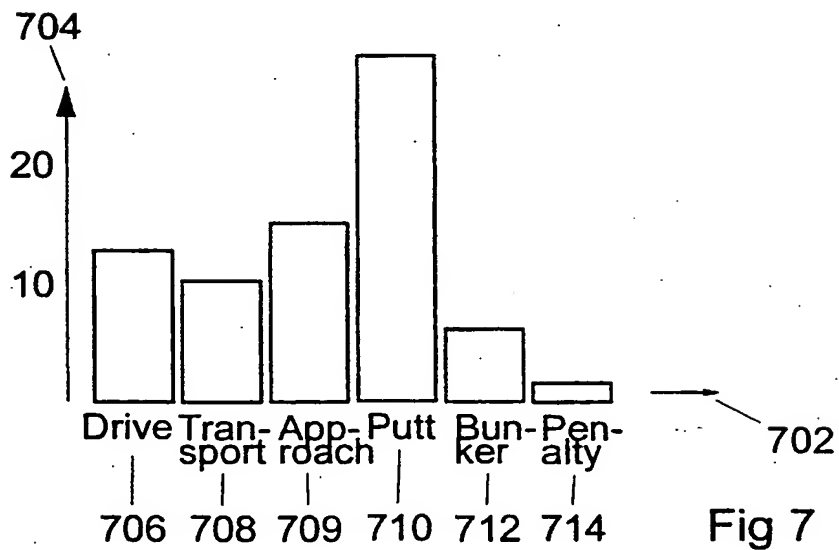
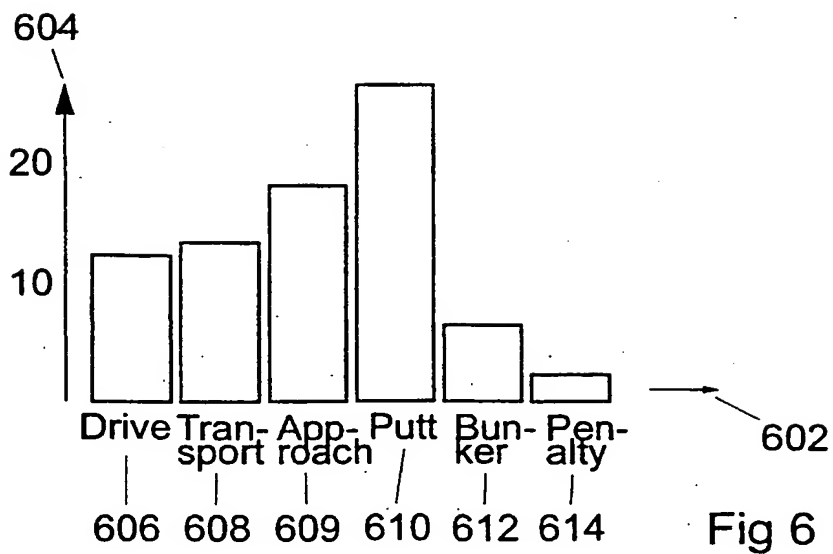


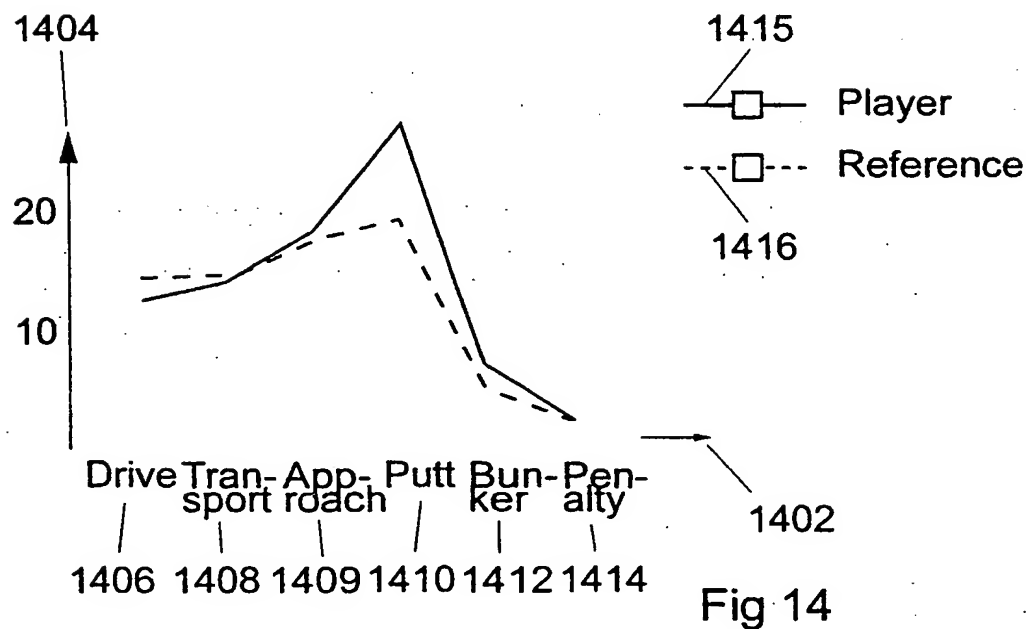
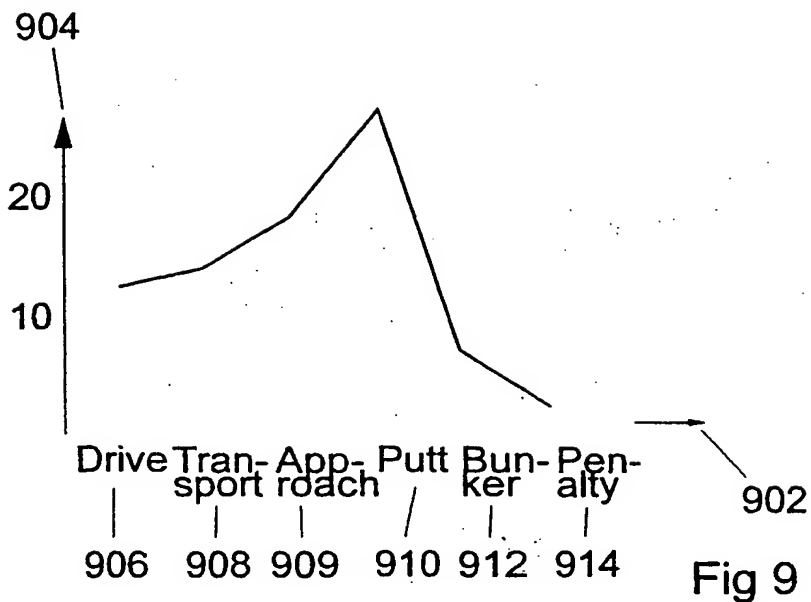
Fig 5

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10/031668

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01501

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A63B 71/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9742588 A1 (WESTGARD QUALITY CORPORATION), 13 November 1997 (13.11.97) --	1-5,17-21, 33-37
X	US 5558333 A (S.M. KELSON ET AL), 24 Sept 1996 (24.09.96) --	1-5,7,8, 17-21,23,24, 28,33-37,40, 41
X	US 5810680 A (L.P. LOBB ET AL), 22 Sept 1998 (22.09.98) --	1-5,7,8, 17-21,23,24, 28,33-37,40, 41

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

25 October 2000

Date of mailing of the international search report

27-10-2000

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01501

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5882269 A (R.D. LEWIS), 16 March 1999 (16.03.99)  --	1-5,7,8, 17-21,23,24, 28,33-37,40, 41
X	FRED S. COX: Golfing and your Palm organizer url:www.palmpower.com/issuesprint/issue1199812/golf. html. (retrieved on 2000-02-10)  -----	1-5,7,8, 17-21,23,24, 28,33-37,40, 41

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/SE 00/01501**

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				GB	2318197 A	15/04/98
				GB	9800205 D	00/00/00
				US	5937364 A	10/08/99
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US	5558333	A	24/09/96	NONE		
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US	5810680	A	22/09/98	NONE		
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US	5882269	A	16/03/99	US	5645499 A	08/07/97
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